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In THE MUNICIPAL INDEX AND ATLAS (the annual reference volume of data and condensed catalogs published by the American City Magazine Corporation) readers will find statistical material, and articles on a wide variety of municipal and public works subjects, not published in the monthly issues of the magazine.

See pp. 17, 18, 20, 113, 115 for catalogs and publications on municipal and civic subjects

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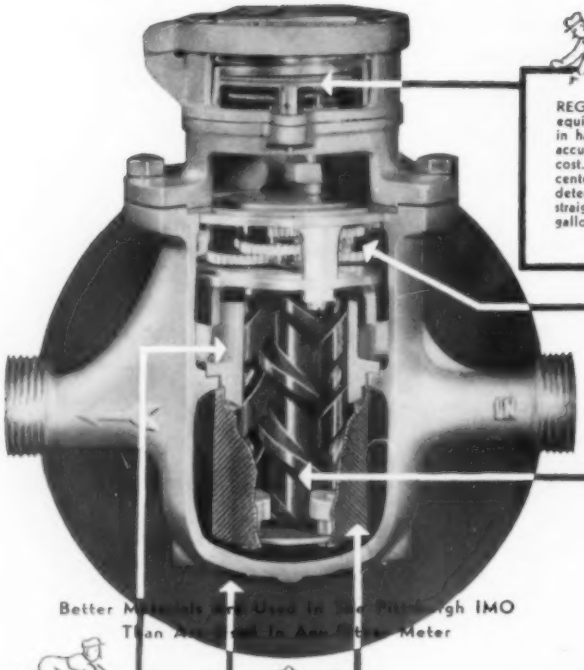
Here's the INSIDE STORY of the PITTSBURGH IMO WATER METER



Better Materials are Used in the Pittsburgh IMO Than Are Used In Any Other Meter

REGISTER—Nickel-plated throughout, equipped with dust rings, spindles work in hard rubber bushings; all to assure accuracy, long life and low maintenance cost. All registers have the large red center hand for accurate proving and detection of leaks. Both circular and straight reading types, indicating either gallons or cubic feet are available.

OIL ENCLOSED INTERMEDIATE GEAR TRAIN — Extreme care has been exercised to produce a smooth running, long wearing gear train. All spindles operate in hard rubber bushings. All pinions and spindles are made from pure nickel. Gears are of hard, special gear bronze. The gear box is cast from a special non-corrosive bronze, and upper and lower parts are held together by three monel metal screws, making assembly or disassembling a very easy matter.

ROTORS—The rotors consist of three vulcanized hard rubber screws which mesh with each other and fit the bore of the measuring chamber. Water enters the measuring chamber from the bottom and, as it is forced upwards by line pressure, causes the rotors to turn from its path. The threads on the rotors act as a continuous piston which always moves in a forward direction. Water is not brought into rotation, but flows smoothly without turbulence or pulsation. The action is perfectly smooth and free from vibration even when operating at maximum flow rate.

MEASURING CHAMBER — The measuring chamber is cast from a special non-corrosive nickel bronze alloy. Machining is held to extremely close limits at this point and the polished interior surfaces provide an ideal confining medium for the hard rubber rotors.

STRAINER—Made of monel screen, completely encircling measuring chamber, the IMO strainer has more area than any other meter. It should be observed that the IMO will stand up longer than any disc meter, even if the strainer is omitted entirely because the water passes through the measuring chamber without turbulence.

QUICKLY AND EASILY ASSEMBLED—The features described in the other panels explain the major parts which comprise the Pittsburgh IMO Meter. They can be assembled in the exterior case to form the complete meter in a few minutes' time and conversely the meter can be disassembled, while in the line if necessary, just as quickly.

AND HERE'S WHAT THE PITTSBURGH IMO WILL DO . . .

The IMO has gained the reputation as being "the most accurate water meter ever commercially built". Specifications guarantee an accuracy of 98% at 1/4 g.p.m., and 90% at 1/12 g.p.m. And IMO accuracy is sustained accuracy, as has been proven in thousands of installations and by the most severe breakdown tests.

Silent operation is another Pittsburgh IMO feature. Due to its basic construction, the IMO can never become noisy; there can be no "clicking" sound to annoy your consumers.

Lower maintenance costs result from the unique design principle which increases the life of working parts and insures longer trouble-free service. You can get the complete story of the Pittsburgh IMO Meter by writing for Bulletin W-529.

Remember—PITTSBURGH IMO METERS MEAN BE WHERE OTHERS WORK OUT

PITTSBURGH EQUITABLE METER COMPANY
MERCO NORDSTROM VALVE CO
NEW YORK · BUFFALO · PHILADELPHIA · KANSAS CITY · TULSA · LOS ANGELES — Main Offices · PITTSBURGH, PA. — DES MOINES · CHICAGO · COLUMBIA · MEMPHIS · OAKLAND · HOUSTON

Housing, Playgrounds, Delinquency

Better Neighborhoods Breed Better Children

WHEN boys and girls go wrong, the chances are that the neighborhood's shortcomings are much more blameworthy than the child's shortcomings. The Duluth study reported on pages 69-73 of this issue is a graphic addition to the growing mass of evidence that juvenile delinquency flourishes in the shadow of the slums.

Almost simultaneously with the release by the Duluth City Planning Department of its findings, there was issued by the United States Housing Authority a leaflet from which the following statements and illustrations are taken:

Studies made over the past few years have repeatedly shown that the areas of high delinquency rates are almost always the areas of bad housing. In one Chicago slum area, one out of every four boys between the ages of 10 and 17 passed through the Juvenile Court in one year. The delinquency rate in Hartford slums was found to be twice as high as in the rest of the city, and in Cleveland the rate was three times as high.

Statistics in city after city tell a surprisingly similar story:

City	Per Cent of City Area	Per Cent of Juvenile Population	Per Cent of Juvenile Delinquency
Philadelphia	9.4	25.1	46
Richmond	18.8	31.0	50
Birmingham ...	12.1	12.2	25
Denver	5.7	11.0	25
Seattle	6.3	11.2	25

Local governments had long suspected that this close relation existed, even before there was such a substantial array of facts and figures to prove it. They had noted that, in case after case, the young delinquents with whom they had to deal came from overcrowded, dilapidated dwellings in miserable neighborhoods. And they had viewed with dismay the enormous

drain upon local treasuries every year for juvenile courts and settlement houses, for social workers and police, for reformatories and jails.

It is, of course, possible to over-simplify the causes of delinquency. Poverty is usually an urgent factor, and poor health is another link in the long chain of environmental and hereditary forces. But there is no escaping the significance of conditions that surround people in their homes. They make for happiness or lead to desperation. . . .

There is one characteristic most slum homes have in common — congestion. Sheer lack of space may drive children out of their dirty, squalid dwellings. When neighborhoods are also congested and lack play space, the children overflow onto sidewalks and streets and into alleys, away from parental supervision. The play groups that spring up in the slums are usually large and unrestrained. At the very period in life when imitative habit formations and intellectual attitudes are being crystallized, the rowdies of the slums are apt to lead and to be mimicked by the other children.

We have not always recognized the importance of pre-school years and out-of-school hours. Not until children are 6 years old do our communities actively concern themselves with their training. Yet young minds and bodies do not grow in a vacuum. It is remarkable how fully modern psychology bears out the implication of the old Jesuit maxim: "Give us complete control of the child up to its seventh year, and you may have it thereafter." . . .

As the child of the slums grows older, he almost invariably tries to escape his sordid environment. In the drive to rise above it, his response to the complex industrial life about him may easily be a delinquent one, particularly if such tendencies have already been acquired.

From birth in squalid homes, to kindergarten in the slums, then graduation into hardened delinquents or big-time criminals—this is the path too many slum-dwellers have trod. We have built the biggest penitentiaries in the world to house them, after they have gone wrong.

Much of the time, actual presence within the home can be avoided, but the time comes when the child must return to eat and sleep. In slum homes it is not uncommon to find three or four adults sleeping in one room, or growing children sharing bedrooms with adults. Adolescent boys and girls often share the same bedroom, sometimes even the same bed. Under such circumstances, privacy is impossible, and immorality may develop.

In Washington, D. C., it was found that more than 72 per cent of all juvenile probationers came from crowded or congested dwellings.

Respectable families may crowd their homes with criminals or other undesirables to help pay the rent. Or they may live in overcrowded or unsatisfactory dwellings because of racial barriers or landlords' refusals to rent to families with children.

When homes lack room for entertaining, young people arrange to meet their friends on street corners or in alleys. Conditions that make it undesirable to stay at home and equally undesirable to go outside the home produce a vicious cycle detrimental to the welfare of a large portion of the nation's future citizens.

Local governments spend millions of dollars every year in fighting the evil consequences of slums. In Cleveland a study sponsored by the city government in 1934 found that the cost of police protection alone in one large slum area averaged $11.50 per person, as compared with an average of $4.20 per person for the rest of the city.

In 1935 a study made by the Mayor's Committee of Hartford, Conn., showed that the city was spending 5½ per cent of its entire budget for law enforcement and other services in a district comprising only 1 per cent of its area.

It costs money to maintain truant officers, social workers, police, reform schools, and jails. If the necessity for these services can be reduced to a minimum through the provision of decent homes in place of slums, local governments save money.

Juvenile Delinquency Nearly Zero in New Projects

In a statement released on January 14, USHA Administrator Nathan Straus stated that reports from various sections of the country showed that the juvenile delinquency rate was virtually zero for the year 1939 among the 40,000 children of 25,000 low-income families removed from substandard homes by the USHA (and former PWA) slum clearance and low-rent housing program. Traffic accidents and police calls nearly disappeared also.

"YOU'RE TELLING ME!"

"That's a funny one. You're telling me what a great thing the telephone is. As if I didn't know!

"Why, I'm one of the main reasons there's a telephone in our house. For you can bet your life I keep the folks pretty busy around here.

"Just think! If we didn't have a telephone, we couldn't order things in a hurry from the stores. And Grandma couldn't call up to ask if I had a tooth. And Daddy couldn't talk to us when he's out of town. And Mother would be tied down just something awful.

"And suppose one of us suddenly took sick? Or there was a fire? Or a robber, maybe? Well, I don't worry about those things when I see the telephone.

"Doesn't cost much either, my Daddy says. And Mother says, 'I don't know what I'd do without it.' "

BELL TELEPHONE SYSTEM

Do you mention THE AMERICAN CITY? Please do.

Our Municipal Notebook

"Where is Number 1939?"

Anyone Who Has Tried to Locate a certain house at night or to orient himself on a strange street, will appreciate the friendly lighted house number shown here. It costs no more to operate than an electric clock, or about 60 cents per year, says its maker, the Curtis Development & Mfg. Co., Milwaukee. With the permission of the National Adequate Wiring Bureau, The Electrical League of Milwaukee installs this illuminated-frame house number free of charge on any house which is adequately wired. Secretary N. C. Christopherson of the Bureau says: "We conceived the idea of putting the name of our local certifying organization, 'Electrical League of Milwaukee,' on the casting, and also a symbol stating 'Wiring Certified,' and we are of the opinion that this is an excellent promotional idea." The frame is a 6½ x 10¼-inch one-piece bronze casting with canopy projecting 2¼ inches, fitting around the standard tile numbers.

Anyone looking for 1941, seeing this number, will know that he is practically there, or that 1940 is just across the street. Approaching the house, he will easily find the steps and the doorbell and, if his own house, the right key and the keyhole—an "all purpose" house number.

Everlite Illuminated-Frame House Number

Modernizing Municipal Electric Plants

"Inefficient Condensing Water and inefficient boilers and generators, as measured by modern standards, led the city of Holland, Mich., to undertake the construction of a new power generating station to replace its old municipal plant, built in 1930," say its consulting engineers.

This would seem to be definitely in line with Dr. M. J. Zucrow's call for municipal plant modernization in the August, 1939, issue of this magazine. The defects in many steam plants he listed as follows: low steam pressure and temperature; lack of heat reclaiming devices; lack of coordination between the steam and electric elements of the plant; lack of modern instruments; poor operating records. The modernization of the Fremont, Nebr., steam-electric plant was described in the next issue, September, 1939.

A modern municipal electric plant is a treasure. Efficiently operated, it reflects not only good service and a certain material success, but a heartening local interest as well. Efficient management is more than efficient operation of existing equipment; it means keeping all the equipment, the plant as a producing unit, up to date. And the fact that it was up to date ten years ago is no assurance that it is so today.

Ten years ago 3½ pounds of coal of approximately 14,000 Btu per pound had to be burned to produce 1 kwh; five years ago, 2 pounds; and now 1½ pounds of coal produces 1 kwh. Powdered fuel and superheat have achieved it.

Ten years ago a gallon of fuel oil produced an average of 8-9 kwh, whereas modern diesel engines are producing 10-12 kwh under average operating conditions. This improvement results from breaking up and atomizing the fuel oil to obtain better combustion and thus a higher kwh output per gallon of fuel. In the oil and natural-gas fields, municipal plants can install a convertible diesel engine burning either natural gas or low-grade "refuse" oil.

All these technical advances show why a great deal of old equipment costs too much to keep, and why brand-new municipal plants can pay costs under a low rate schedule.

Criminal Records on Tap

Fingerprints Have Become Big Business in the police departments of the nation. The Federal Government has millions of them, the states hundreds of thousands, the larger cities tens of thousands. Perhaps sometime someone with a flair for that kind of research will find a common thread in the prints of criminals. Such a tie would be very helpful to humanity, as identification could then begin in the baby's crib, and much after-grief thus be prevented.

There is gradually accumulating throughout the country a complete record of the world's criminals and misdoers. The value of these files is not as storage places, but as information on tap for instant use. This demands a scientific filing system, and the visible Kardex system of Remington Rand Inc., appears to be a favorite.

Duluth, Minn., has kept records since 1888, and compact Kardex cabinets housing 78,000 records use less wall space than did the old wall panels holding only 60,000 records.

In El Paso, Texas, the files of the City Bureau of Identification are coordinated with the records of the U. S. district offices of the Border Patrol, immigration and naturalization offices, and numerous other public departments—and 65 per cent of the names are Mexican or Spanish. The purpose of the system is to preserve the original records by means of protected tips and dustproof cabinets; to speed reference by visible margins and colored signals; to provide accurate identification by quickly viewing the photographs one at a time instead of in confusing flocks. Henry System fingerprint guides aid the quick identification of a fingerprint among the 90,000 on record. The entire system works to furnish a complete history of each criminal activity.

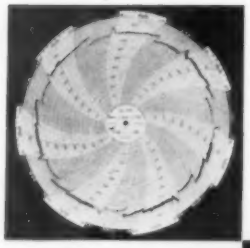
Greensboro, N. C., with 60,000 residents and a trading population of 390,000, files its photographs by type of crime, thus grouping the specialists. In each group the pictures are arranged by height of individual, sex and color. With the pictures are filed the record, so that one search furnishes the complete history. The Henry System handles 30,000 fingerprints. As in Duluth and other cities, a separate file is maintained for car thefts.

Yonkers, N. Y., keeps photographs and records (on 3 x 5-inch cards) of 4,000 jail lodgers, with a code symbol showing misdemeanors and felonies. Records of taxicab licenses and revolver permits are also maintained by this bureau. The theory of the Kardex system is, first, to file each unit of information in the logical place, then to make all the data quickly assimilable, as much as possible being spread out visibly. It is giving efficient service not only in a multitude of police departments but in all the numerous municipal departments run on living records.

Electric Drive for Buses

Speaking of last year's gains in electric street transportation, G. W. Wilson, Manager of the transportation department of General Electric Co., says: "Of particular interest is the increased use of diesel-electric and gas-electric drive buses.

Southern Tobacco Center benefits from ELEVATED STORAGE

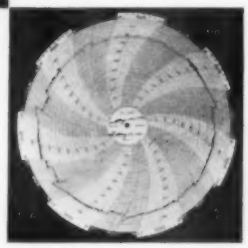


BEFORE

At the left is a typical pressure chart showing the pressure in the Durham, N. C. distribution system from January 24th to 31st, 1939 before the new tank was installed.

AFTER

The pressure chart reproduced at the right shows the pressure in the distribution system from May 22nd to May 29th, 1939 after the elevated water tank was installed.



DURHAM, N. C., is one of the best known tobacco centers of the south. This modern city enjoys a well-deserved reputation for leadership and progressiveness in industrial as well as residential enterprise. Duke University — The American Tobacco Company—Liggett & Myers —Erwin Cotton Mills—these are a few of the prominent names that occupy an important position in the rapid growth of Durham.

Keeping pace with the general expansion of the city itself is the modern water supply system; the result of far-sightedness on the part of city officials responsible for its development. As far back as 1915, the city of Durham began planning an efficient water supply system which would provide adequate facilities to handle the increased water demands that naturally follow substantial increases in population.

One of the first major units to be installed in Durham's long-range water works program was the construction of a 4,500,000-gal. filter plant, put in operation in 1917. Subsequent improvements included the building of a dam to create a lake holding 4,500,000,000-gals. of water. This project included the development of hydro-electric power, to be used during normal and wet seasons. From 1926 to 1939, several important improvements were made, including additions to the Filter Plant and the extension of numerous transmission mains.

The most recent step in the original plans has been the installation of the new 1,500,000-gal. Horton radial-cone bottom elevated tank shown above.

One of the problems which existed before this tank was installed was that of handling high peak loads efficiently. With the tank in service, variations in distribution pressures are minimized. This improvement is revealed graphically by the accompanying pressure charts, recorded before and after the tank was installed. In addition to smoothing out pressure variations, introduction of large capacity elevated storage into the system has made it possible to improve pumping efficiency.

CHICAGO BRIDGE & IRON COMPANY

Chicago.....2127 Old Colony Bldg.
New York.....3308-165 Broadway Bldg.
Cleveland.....2236 Rockefeller Bldg.
Detroit.....1501 Lafayette Bldg.
Philadelphia..1616 "1700" Walnut St. Bldg.
Boston.....1501 Consolidated Gas Bldg.
Birmingham.....1302 N. Fiftieth Street
Dallas.....1406 Liberty Bank Bldg.
San Francisco.....1033 Rialto Bldg.
Houston.....2919 Main Street
Tulsa.....1625 Hunt Bldg.
Los Angeles.....1403 Wm. Fox Bldg.

Fabricating plants in CHICAGO, BIRMINGHAM, and GREENVILLE, PA.

In Canada: HORTON STEEL WORKS, LIMITED, FORT ERIE, ONTARIO

Improvements to Water Works

Water-Works Improvements at Huron, Ohio

THE HISTORY OF IMPROVEMENTS to the water works of Huron, Ohio, and the financial standing of the Light and Water Department since 1933 are of interest. In 1933 there was $1,189.10 in the treasury at the end of the year after the Department had installed a new filter and remitted one month's light bills. In 1934, $353.90 remained in the treasury, and the Department completed the installation of two elevated steel storage tanks. In 1935, the balance was $6,229.42, and the Department remitted two months' light bills, as it did also in 1936, when the balance was $6,378.60.

In 1937, the balance was $1,851.17 after the installation of new filters, pumps and equipment, and after one month's light bills had been remitted. In 1938, the balance was $6,668.36 after the Department had spent $901 for two Rusta-Restor units to prevent corrosion in the elevated steel tanks, and $500 for a new Dodge pick-up truck and had remitted light bills for one month. In 1939 the Department purchased a new Mack line truck with derrick and winch, and remittted one month's light bills.

During the period from 1933 to 1939, the consumers had a 22 per cent cut in light rates, and the water rate was reduced from $10 to $8 per year. The filtration plant has all new equipment, filters, pumps, chlorinators, etc., at no cost to the taxpayer, and the following sums have been remitted to the Council to aid in reducing taxes: 1935, $15,000; 1936, $1,500; 1937, $1,800; 1938, $9,000.

R. V. AICHER,
Superintendent, Light and Water Department.

Reservoir Leaks Stopped with a Colloidal Clay

A VERY INTERESTING METHOD of stopping the leaks in a large reservoir has come to our attention. Chamberlain & Strain, of San Antonio, Texas, were the contractors for a 10,000,000-gallon reservoir for the city of Corpus Christi, Texas. This reservoir, designed in the form of a huge bowl, serves as storage in case of fire or breaking of the main line from the pumping plant at Calallen. The reservoir is 268 feet in diameter at the top, and the sides slope in on a 1 to 1 slope, the floor is 30 feet from the spring line and the roof is groined. The specifications required the contractor to make a test for leakage with an allowance of 10,000 gallons in 24 hours. The concrete slabs of the reservoir were laid in approximately 50-foot sections, creating a great length of expansion joints, made with neat cement grout and oakum.

During the test it was found that the huge bowl settled about ¾-inch under the weight of the water, and when the water was removed the slabs sprang back into place, resulting in cracking of the cement joints and opening them up so that there was a leakage of over 500,000 gallons in 24 hours when the reservoir was only half full.

The contractor secured a new specification from the engineers, calling for the removal of all the cement joints and substituting a plastic material with the oakum. After the cement joints were removed, they were filled with Volclay, a colloidal clay, for about ½- to ¼-inch, and then the mastic compound was applied with strips of canvas over the expansion joints saturated in the plastic compound in accordance with the engineers' instructions. Still, the contractors did not feel that this was sufficient, as the concrete walls themselves might be porous in such a large structure. Accordingly, Chamberlain & Strain brushed the Volclay on the concrete so that every bit of the interior of the reservoir had a thin, dry coating of this material. The water was then permitted to enter the reservoir very slowly, and a reading was taken every few hours, stopping to check results. In the final test it was found that the leakage had been reduced from 500,000 gallons per 24 hours with the reservoir only half full to only 4,000 gallons per 24 hours with the reservoir filled to capacity.

Service Pipe for Water-Works Installations

IN A PAPER presented before the American Water Works Association, E. Sherman Chase, consulting engineer, Boston, Mass., summarized the negative and positive characteristics of materials for service pipe for water-works installations. He stated that the material should not be such as:

(a) To impart to the water passing through the pipe qualities injurious to the health;

(b) To produce deterioration in the quality of the water as regards appearance, taste or odor;

(c) To increase the hardness, iron, copper or zinc content to such as extent as to affect the water adversely for domestic or industrial uses such as laundry, dyeing, bleaching, etc.

On the positive side, the material should be:

(a) Of such character as to permit the pipe to retain its carrying capacity and to maintain a clear waterway;

(b) Strong and durable under the conditions of service;

(c) Easily laid with simple tools and a minimum of skilled labor;

(d) Relatively inexpensive, considering the probable life.

A MODEL M ALLIS-CHALMERS TRACTOR WITH SPRING TOOTH AND SPIKE TOOTH HARROWS MIXING AN OIL AND EARTH LINING FOR THE SHELDON RESERVOIR, PASADENA, CALIF.

The lining was applied in layers to the sides and bottom of the city water supply reservoir prior to placing the concrete lining. After each layer was thoroughly mixed, it was compacted with a sheepsfoot roller

It Can't Happen Here!

Close-up of badly tuberculated pipe.

Close-up cross-section of Mono-Cast Enameline Pipe. Note uniformity of lining and close adherence to pipe metal.

MONO-CAST *Enameline* PIPE

Positively Prevents Tuberculation

. . . definitely lowers pumping costs, maintains permanent high "C" values and permanent carrying capacity. It is regular high-strength Mono-Cast Centrifugal Pipe lined by a new and improved centrifugal method with two coats of special Portland cement mortar intimately bonded to the bare metal pipe surface, and finished with a final coat of asphalt paint. Cuts, taps and threads perfectly without cracking or chipping. Except in very special cases where additional thickness of lining would seem desirable, Mono-Cast Centrifugal Pipe and Fittings are furnished "Enamelined" without additional cost. More than 2,000,000 feet of this pipe now giving highly satisfactory service throughout the United States and in foreign countries. Write for literature.

AMERICAN CAST IRON PIPE COMPANY

BIRMINGHAM, ALA.

NEW YORK CITY CHICAGO KANSAS CITY MINNEAPOLIS DALLAS
LOS ANGELES SAN FRANCISCO PITTSBURGH CLEVELAND

30" Mono-Cast Enameline Pipe awaiting installation in recently-completed 22-mile water supply line from Table Rock Dam to Greenville, S. C.

Why not remember to mention THE AMERICAN CITY?

Sewers and Sewage Plants

Eliminating Sewer Odors Along City Streets

A Discussion of Sewer Odors, which are objectionable to most citizens, occupied a short period at the recent 45th Annual Convention of the American Public Works Association, and various methods of overcoming this nuisance were brought out.

In the borough of Berwyn, Ill., whenever objectionable odors come from the sewer, chloride of lime is dumped into manholes and this usually does away with the trouble.

Rochester, N. Y., has combined sewers, and instead of having catch-basins it has inlets with traps and equipped with vents carried into the stacks which run to the tops of adjacent houses. By venting the odors at this elevation, the vapors are dissipated and are not noticed by pedestrians or householders. When a long dry spell is experienced, as during the summer of 1939, the Water Department is asked to flush its mains into the sewers, advancing its regular program of main flushing to help clean the sewers.

In Lower Merion Township, Pa., wherever objectionable sewer odors come from manholes, the manhole covers are sealed and the vapors permitted to vent through other manholes in districts where the odors will not be noticed. The same procedure is used in Wichita, Kans.

Legislation to Finance Sewage Works Proposed

The Interstate Sanitation Commission, which has jurisdiction over a sanitation district embracing the entire Metropolitan area of New York and New Jersey, has received the backing of many health agencies in these two states to secure new legislation by the respective legislatures giving the Commission authority to issue self-liquidating bonds for the construction of needed sewage-treatment plants. The program, prepared after consultation with financial experts in both states, has received warm approval. In simple terms, the plan provides for the issuance of bonds to be amortized out of moderate sewerage charges to be levied by the municipalities availing themselves of this new form of financing.

Need for authority to render financial assistance to municipalities has been apparent since the Commission's inception. When the Commission began work two years ago, 86 per cent of the municipalities in the District over which it has jurisdiction were violating the Interstate Compact by discharging insufficiently treated or raw sewage into the surrounding waters. Since then sixteen treatment plants have been completed or are in the process of construction.

Many times that number of plants would be under way at the present time had funds been available to municipalities desirous of complying with the terms of the Compact.

Watch the Gas at Sewage Works!

Ten Important Rules for the maintenance of sewage sludge gas collection and utilization equipment recently appeared in *The Digester* of the Illinois Department of Health. The rules were formulated from a discussion at a recent Illinois State Sewage Works Operators' Conference led by L. E. Langdon, of the Pacific Flush-Tank Co. The care and maintenance of gas equipment is so important that we reprint here these ten rules:

1. Avoid all possibility of admixture of sewage gas and air.
2. Inspect all appurtenances frequently, making certain that they will operate as intended.
3. Keep all piping and appurtenances clean. Take them down for this purpose at least annually.
4. Give frequent attention to condensate receivers.
5. Provide outside vents at all points of possible gas leakage.
6. Check all water seals and gas pressures daily.
7. Maintain temperatures of more than 160° F. at the boiler and less than 130° F. in the water going to the digester.
8. Keep the pilot burner in the boiler free of deposits.
9. Be sure that the flame-trap elements are clean.
10. Look for accumulated condensate in piping or appurtenances if gas flow stops suddenly.

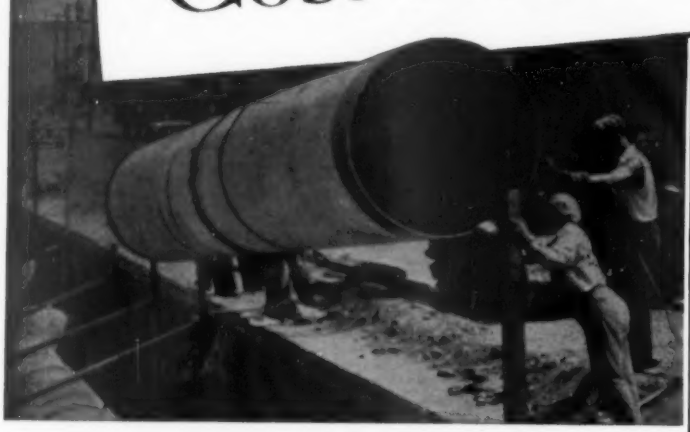
Fertilizer Sales Pay Half Operating Costs

THROUGH the sale of about 50,000 tons of fertilizer annually, the Milwaukee, Wis., sewage-treatment plant finances approximately one-half of the yearly cost of operating the plant. This fertilizer, known as Milorganite, is made from the sewage sludge and sells at prices ranging from $10 to $20 a ton, producing a total income of $767,387 during 1938. The gross cost of operating the sewage plant, excluding interest on bonds and sinking-fund, was approximately $1,225,000 last year.

The production and sale of fertilizer from the sewage sludge of the Milwaukee plant was started on a commercial basis in August, 1926, about one year after the plant was completed.

Backfilling a 3-Foot Sewer Trench in Washington, D. C., with a Hough Loader Mounted on an Allis-Chalmers Model M Tractor

Why STEEL MAINS Cost Less!



• *FOR HIGHLY CORROSIVE WATERS*

In addition to regular steel pipe, National produces a special cement-lined pipe, "DUROLINE," designed to give long service under extremely corrosive water conditions. In DUROLINE, the interior surface of the pipe is completely sealed against corrosion—giving you the perfect combination of the strength of steel and corrosion prevention at nominal cost.

• *FOR HIGH WATER PRESSURES*

For handling abnormally high water pressures, we recommend NATIONAL Seamless Pipe, a pipe that is made without welds, by piercing solid billets of highest quality steel. This pipe removes all possibility of localized weakness and assures full wall strength throughout. NATIONAL Seamless is available in sizes up to 24-inch O.D. Write for data.

WALLS WITHOUT WELDS COPYRIGHT 1937

. . . IN LAYING

Steel water mains cost less to lay because steel pipe weighs less and is easily handled, comes in longer lengths, is readily joined, and requires fewer joints per mile. You can use narrower trenches, because joints on steel pipe can be made in less space.

. . . IN OPERATION

Steel water mains cost less to operate because they retain full carrying capacity for longer time. Keeping tuberculation to a minimum keeps pumping costs lower, saves money ordinarily spent for periodic cleaning of mains. The use of steel pipe reduces leakage and the usual anticipated loss per mile common to other materials.

. . . IN MAINTENANCE

Steel water mains cut repair bills and prevent property damage, because they are not subject to sudden breaks. Steel is strong and ductile—not brittle. You can bend it severely without breaking it. That's why steel pipe withstands earth settlement, shock, vibration — without damage. It's this ability of steel pipe to "stay put" in the trench in spite of unpredictable stresses that eliminates costly maintenance.

. . .

NOW write for more information on NATIONAL Steel Pipe for Water Mains. The National organization, world's largest makers of tubular products, is equipped to serve you efficiently, speedily, and in exact accordance with your requirements.

NATIONAL TUBE COMPANY

PITTSBURGH, PA.

Columbia Steel Company, San Francisco, *Pacific Coast Distributors* • United States Steel Export Company, New York

UNITED STATES STEEL

Making the Public's Health Secure

Newark Gases Rats Before Razing Houses

PRIOR TO THE DEMOLITION of some 145 buildings, mostly tenements, preparatory to the construction of new housing facilities at Orange and Nesbitt Streets, Newark, N. J., by the Newark Housing Authority, the Newark Health Department required the extermination of the estimated 500,000 rats believed to be living in these old structures.

Men wearing gas masks went from building to building directing cyanide gas under pressure into every corner of the structures, into inner walls and every hole that could be found. The entire area was roped off, and the 30,000,000 cubic feet of structures filled with the odorless, colorless gas, while police stood guard to keep people away from the danger zone.

An ordinance of the city of Newark, which is one of the few ordinances of this type in the country, requires the extermination of all rodents in any structures before demolition. In this way rats are not driven from one structure to another as old tenements are demolished, and thus the health of the community is protected, as well as its property.

Methods of Regulation of Food Handlers

EDUCATIONAL MEASURES are replacing routine periodic examinations in the regulatory program by which a number of cities prevent the spread of food-borne diseases, according to the American Municipal Association. During the past five years New York City, Salem, Ore., Bridgeport and Hartford, Conn., Racine, Wis., and other cities have abandoned the routine examinations in favor of other means of regulating food sanitation in public places.

These cities made the change because they found the examinations expensive, unreliable and ineffective for the purpose. In New York City, for example, over an 11-year period, only 245 of 327,458 food-handlers examined had to be discharged because they were disease carriers.

Many public health authorities have come to the conclusion that routine examinations of food-handlers are not effective as a method of controlling communicable diseases, because the principal food-borne diseases, typhoid fever and dysentery, cannot be detected by cursory examinations.

The League of Oregon Cities has suggested an effective three-point program which involves: (1) adoption of sanitary regulations to govern food-handlers; (2) education of food-handlers in sanitary methods; and (3) close check-up on all infectious and contagious conditions that might be transmitted through food-handlers.

A model ordinance drawn up by the Oregon League proposes that each food-handler register for a permit, to be given after he is pronounced free of communicable diseases and after he has satisfied the health officer that he is "reasonably well-informed of the practices necessary in food establishments for preventing the transmission of communicable diseases through food." The ordinance declares it unlawful for food-establishment owners to employ a person with a communicable disease. It had also been suggested that establishments found guilty of violating such an ordinance forfeit their licenses.

Dust Control from Stoker-Fired Furnaces

WITH THE INCREASE in the rate of combustion in modern stoker-fired steam-generating units and the wide adoption of the pulverized fuel method of firing, the necessity for removing the solid particles from the flue gas has increased. No standard or generally recognized method has seemed to be available for determining the adequacy of dust-separating apparatus when installed in a power plant. The Power Test Codes Committee of The American Society of Mechanical Engineers, which has been a leader for sixty years in promoting public health and safety through engineering, appointed a committee to draft a test code for dust-separating apparatus. The membership of this committee represents a cross-section of utilities, stoker manufacturers, smoke regulation departments, and public health interests.

The new code is believed to meet the needs of all groups, manufacturers, public utilities, governmental agencies, etc., which from time to time have a part in the making of acceptance tests of this type of apparatus. The tentative drafts of the committee were discussed at a public hearing early in December, during the 60th Annual Meeting of the Society. Complete copies of this standard test code may be obtained by any officials, from The American Society of Mechanical Engineers, 29 West 39th Street, New York.

The Responsibility for Public Health

SANITATION CONSTITUTES one of the foundation stones of the whole public health program. Not infrequently some public health administrators give expression to the idea that the sanitation programs have been completed and that public health efforts should now be directed primarily toward the individual.

Lest some be deluded with this idea, attention is called to the fact that merely the surface of sanitation problems has been scratched.

When public health officials relax their efforts on sanitation, usually some catastrophic outbreak or epidemic checks them up short. It is only necessary to call your attention to the milk-borne outbreak of typhoid fever in Montreal in 1927 and the oyster-borne outbreak in 1924 to attest to the eternal verity of this statement.

The investigations of Connally of the causes of post-operative infections in the hospitals of Chicago reveal the hazards of cross-connections and back-siphonage. The outbreak of amoebic dysentery in Chicago during the World's Fair there strikingly illustrates the dangers inherent in faulty plumbing. This one epidemic focused the attention of sanitarians upon correct plumbing as a public health safeguard and broadened to an enormous extent the former concept of sanitation.

The outbreak of the Shiga type of bacillary dysentery in Michigan last year drew attention of public health workers to the importance of proper disposal of waste matter. The outbreak of typhoid fever caused by a short circuit between a sewage-disposal plant and a well at Angola, Ind., showed the necessity of seeing to it that tourist camps, bus stops and other places where people congregate have a safe water supply and a safe method of excreta disposal.

The typhoid epidemic at Manteno, Ill., tragically illustrates the necessity of keeping sewage out of an institutional water supply. The citation of these few instances should be sufficient to convince public health workers that sanitation should not only be included in a modern public health program, but should also be vigorously stressed at all times by every member of a public health organization.

—From a paper read at the 19th Annual Michigan Public Health Congress by C. C. APPLEWHITE, Surgeon, U. S. Public Health Service; printed in *Michigan Public Health*, of the Michigan Department of Health.

the Vital Gap

between the inception of fire and the arrival of apparatus can be bridged by installing more and conspicuously located fire alarm boxes . . . . . .

Three Fold Fire Alarm Box on Type U1000-6 Pedestal

Every fire chief realizes that an inconspicuously located box can mean a *delayed alarm* . . . precious seconds lost that might well result in a conflagration.

Fire losses can be lowered . . . and they have been in many communities where the advices of Gamewell engineers were carefully considered and accepted.

Gamewell surveys indicate that a "box a block" in congested, high value districts are none too many. Then in residential sections a box every 500 feet and where localities are sparsely settled, a box at every group of buildings provides ideal protection.

Make the Three-Fold Fire Alarm System your city's "first line of defense against Fire!"

Check up on the fire alarm box situation in your town, then ask the cooperation of Gamewell engineers.

THE GAMEWELL COMPANY

NEWTON UPPER FALLS MASSACHUSETTS

Public Safety

Pasadena's New Rescue Truck

MOUNTED ON A DIAMOND T cab-over engine-type 3-ton chassis, the new Rescue Unit of the Pasadena Fire Department carries 148 pieces of equipment, some of which are new to fire-department practice.

Two 2½-kw light plants provide electricity for four 750-watt floodlights, one 750-watt spotlight, and two 200-watt portable lights with four reels carrying 300 feet of cable. Two-way radio equipment is in the cab. The public-address system is directional with a range of ½-mile. The microphone can be used within 50 feet of the machine.

Duplicate oversized batteries in a lead-lined compartment on rollers can be drawn out for servicing. Charging plugs permit the batteries to be charged without rolling out the compartment. A switch in the cab permits either battery to be used on radio or on engine electrical equipment, or both batteries can be switched together.

The rescue truck goes to all fires, where it serves also as a communication and contact point for giving and receiving orders. On arriving at the fire, a lighthouse flasher-type red light is raised hydraulically to direct off-shift men to this unit. As off-shift men report, they are checked in and out on Kardex cards. A time-stamp records the exact time, and the cards are then a permanent record of the men's arrival and departure.

The lights, loudspeaker and flasher are all carried on hydraulic rams in a fore-and-aft tunnel and are elevated by a motor-driven pump. All or any one of the lamps can almost instantly be raised.

The photograph shows the left-hand side of the unit, looking forward, where are stored a first-aid kit, E. & J. resuscitator and aspirator, salvage covers, acetylene - cutting outfit, Homelite blower, 500 feet of No. 8 and No. 14 light cord, two stretchers, sprinkler heads and shut-offs, and a 10-ton hydraulic jack. On the other side are stored a hose mask, ½-hour McCaa masks and a Burrell All-Service mask, manufactured by Mine Safety Appliances Co., and the various lamps, batteries, the loudspeaker, and 2½-inch and 1½-inch Fognozls. There are seven compartments on each side.

E. F. COOP,
Chief, Fire Department, Pasadena, Calif.

Pasadena's New Rescue Unit, with Fire Chief E. F. Coop at Left and Master Mechanic H. A. Cannon at Right

Week-Day Parking Problem Solved

THE TOPOGRAPHY OF WELCH, W. Va., makes additional parking space impossible to find. We have three parking lots, all business streets metered, and no parking space for some distance from the business district.

Parking was a serious problem in Welch before 171 meters were installed in August 23, 1939. Since then the problem is restricted to Saturday nights, when miners and their families come to town and a hundred cars cruise the streets in search of space. Every available foot of parking space is occupied by 7 P. M.

The average daily revenue per meter for these one-or-five-cent meters has been 26 cents. Probably a quarter of the meters collect five to ten cents per day except on Saturday. All the meters are well worth their cost because they make parking space available when it is needed on week-days. I am confident that if all space on business streets had not been metered we should have continued to have a six-day parking problem.

W. M. HEALY,
City Manager, Welch, W. Va.

Inhalators Revive Gassed Group

OXYGEN LACK and exhaust gas seepage from the gas-fired boiler of a steam pressing machine in a closed room, on January 17, sickened 30 employees of the Lyric Coat & Suits Co., Inc., in New York City.

Police Emergency Squad No. 3 responded to the call, which mentioned five persons needing resuscitation, successfully used its two H-H inhalators on these victims, and then similarly treated a number of other employees who experienced discomfort. Fortunately, in view of the wholesale need, the Squad carried an auxiliary attachment of Mine Safety Appliances Co., which permitted the independent treatment of two victims, by one unit.

Squad 3 is one of New York's twenty emergency trucks—nine in Manhattan and the Bronx, ten in Brooklyn and Queens, and twenty-one in Staten Island. The Mack truck, manned by nine men commanded by an acting sergeant, carried 270 items.

The next day, January 18, a call came that a coal hopper had collapsed, burying a number of men, at the silos of the Riverside Coal Co. in the Bronx. As soon as Police Emergency Squads arrived, the men went to work, and found that what actually had happened was that in loosening frozen pea coal by fire built under the cars, so that the coal could be transferred into the silos, carbon monoxide gas had been liberated. By this time, a number of the policemen and firemen as well as coal-company employees were unconscious or affected. Inhalators were used by the police, the firemen, and the hospital and fire-department ambulances.

2,500-Gallon Seagrave Tank Truck for Los Angeles County Hill Fires

NOW COMMUNITIES CAN AFFORD TO REMOVE ALL ICE AND SNOW FROM WINTER STREETS AND ROADS WITH INTERNATIONAL'S ROCK SALT

ENORMOUS progress has been made in meeting the public demand for highways made safe from ice and snow in winter—but anyone who has studied the problem knows that there is no real safety until ice has been completely removed.

By older methods, attaining this ideal has been impossible—but today there are miles and miles of streets and highways kept bare of snow and ice all winter long, by improved and economical methods of using International's Retsof, Detroit and Avery brands of Rock Salt. These new, low cost methods have been developed by International's Engineering Department, working in close co-operation with practical road men.

International will share with you, the results of all its research and engineering studies, its broad experience in making winter pavements really safe. If you will write for the free folder, "Making Winter Pavements Really Safe," you will get a summary of the facts. Better still, ask to have an International engineer call, with no obligation, to give you all the facts and answer any questions you may care to ask.

WHY INTERNATIONAL'S ROCK SALT IS SO ECONOMICAL WITH THIS METHOD

Because of its great melting power, Rock Salt is most economical for use in treating stock piles of abrasives to keep them from freezing, and in treating abrasives so that they will be imbedded in ice. For the same reason, Rock Salt used alone is the most economical melting agent to *remove* ice and hard-packed snow. A little does much. In addition, this method saves: cost of abrasives, cost of treating, storing, reloading and applying them; the cost of removing them from roads and streets, sewers and catch basins later; and, since proper use of straight Rock Salt corrects all effects of storms with one treatment, saves the cost of treatments several times a day for several days with abrasives. No wonder public officials say: "It costs less to keep pavements bare."

COMPARISON OF MELTING CAPACITIES OF SODIUM CHLORIDE AND CALCIUM CHLORIDE

(LABORATORY TESTS)

POUNDS OF ICE MELTED PER POUND OF CHEMICAL
Maintenance Committee, Highway Research Board Vol. 13

Temperature Deg. F.	Sodium Chloride (Salt)	77-80 percent Flake Calcium Chloride
30°	46.3 lbs. of ice	31.1 lbs. of ice
25°	14.4 lbs. of ice	10.4 lbs. of ice
20°	8.6 lbs. of ice	6.8 lbs. of ice
15°	6.3 lbs. of ice	5.5 lbs. of ice
10°	4.9 lbs. of ice	4.8 lbs. of ice
5°	4.1 lbs. of ice	4.4 lbs. of ice
0°	3.7 lbs. of ice	4.0 lbs. of ice
—6.5°	3.2 lbs. of ice	3.7 lbs. of ice

The greater ice melting power of ROCK SALT
Advantage of Rock Salt in percentages as calculated by International Salt Co., Inc.

Rock Salt melts	48.9% more ice
Rock Salt melts	38.4% more ice
Rock Salt melts	26.4% more ice
Rock Salt melts	14.5% more ice
Rock Salt melts	2.0% more ice
— 6.8%	Temperatures at these low levels are seldom long sustained, and make it impractical to use any ice melting agent due to the large amount required.
— 7.5%	
—13.5%	

INTERNATIONAL SALT COMPANY, Inc.
SCRANTON, PA. NEW YORK, N. Y.

Vol. LV, No. 2 The American City FEBRUARY, 1940

Is Forethought Too Costly for Democracy?

IS IT worth one cent per annum to the average citizen of the United States to have an agency in Washington that is constantly planning for the conservation and best use of the nation's resources, public and private, and is also aiding substantially in the work of state and local planning boards?

That question has become one of immediate urgency because of elimination by the House of Representatives last month from the Independent Offices Supply Bill of the $1,060,000 requested by the President for continuance next year of the work of the National Resources Planning Board. As the *United States News* puts it, "Present Congress idea is to slap at the White House with cuts in pet Presidential projects."

There may be fun in slapping at the White House, but some kinds of slaps may be too silly to be politically wise, and too costly to be economically sound.

One of the major present challenges to the American system of government is to prove that a democracy can plan more wisely and function more effectively than a dictatorship. Planning, or organized foresight, is obviously needed at all three levels of government — national, state and local. It is with the local level—that of the municipality and the county—that most readers of THE AMERICAN CITY are, of course, mainly concerned. Here the National Resources Planning Board has been rendering important service—not by attempting to control local planning from Washington, but mainly by helping to set up and stimulate the activities of state planning boards, which in turn are enabling county and municipal planning to proceed more effectively than would otherwise be possible. Aid to local planning has also been given in various ways, including the so-called Urbanism studies published or in press.

In the first of these monographs, "Our Cities: Their Role in the National Economy," an ideal relationship between national and local planning was stressed:

> It is not the business of the United States Government to assume responsibility for the solution of purely local problems any more than it is the business of local governments to assume primary responsibility for the settlement of national problems. Yet, the United States Government cannot properly remain indifferent to the common life of American citizens simply because they happen to be found in what we call "cities." The sanitation, the education, the housing, the working and living conditions, the economic security—in brief, the general welfare of all its citizens—are American concerns, in so far as they are within the range of Federal power and responsibility under the Constitution.

Commerce and Industry Plan; Why Not Government?

In a paper prepared for the annual convention of the American Public Works Association, held in Pittsburgh last October, John M. Carmody, Administrator of the Federal Works Agency, pointed out that the principles involved in the advance planning of expenditures for construction work are not a new thing. Commerce and industry have applied them for many years. But, continued Mr. Carmody:

> Private enterprise has, of course, always measured the returns to be expected from the investment in terms of dollars. Governmental agencies cannot always measure the value of public works projects by a monetary yardstick. For example, what dollar value could one place on a stream pollution project?—even though it is obvious that such a project is a health protective measure, that it has definite social and recreational value, and that it means a definite increase in property values which will ultimately show up in increased tax receipts to the community.
>
> Likewise, while it has been shown that slum clearance projects have a definite relationship to the curtailment of disease, crime and fire hazards, all of which cost the public money, we have not yet discovered a formula by which to measure the monetary savings. Certain projects such as toll-bridges and water works are, of course, revenue-producing and provide economies and public services, but other projects which produce social benefits only can often be said to be of greater value to the community.
>
> Despite the relatively large volume of emergency construction which has been undertaken in the past several years, our records indicate that the needs of the people for vital public services have not yet been met. We are behind in school construction by about 2½ billion dollars. Over 100,000 obsolete one-room schools still cover the countryside, while almost 40 per cent of our educational buildings are over 30 years old. They are obsolete and are in urgent need of replacement. Hundreds of small municipalities and unincorporated communities are still dependent upon the well and pump and rain-barrel for their water supply. Streams bordering and flowing through some of the most important cities are polluted, endangering the health of the residents, lowering real property values and discouraging the location of new industry. Hospital facilities, in all but a very few metropolitan areas, are woefully inadequate. While notable progress has been made in the elimination of grade crossings on major highways, in the cities themselves the problem is only now being undertaken on a comprehensive scale. The slum clearance carried forward in the last few years has barely scratched the surface.

Regardless of how opinion may differ as to the wisdom of liberal public spending as an aid to private industry and to the reduction of unemployment, there can be no intelligent advocacy of the sheer waste that results from lack of planning. To assume that the public welfare can be advanced by the elimination of planning agencies from our governmental system is to go contrary to common sense and to the experience of successful business enterprises.

Congress would be well advised to restore the appropriation of the National Resources Planning Board, and to enact legislation making that agency a permanent arm of the Federal Government for which an adequate annual appropriation would be a matter of course.

Improved Asphalt Paving in Detroit

New Gutter Paving Withstands Parking. Special Paved Areas at "Stop" Streets and Non-Skid Sheet Asphalt

By CHARLES L. SHATTUCK
Assistant Chemical Engineer, Asphalt Division, Department of Public Works

THE city of Detroit, center of the automobile industry and with a population of approximately 1¾ millions, shows an automobile registration of about 425,000, or one car per four people. This is in addition to a commercial-vehicle registration of about 40,000. To carry this tremendous amount of traffic, the city has about 1,800 miles of well-paved streets, totaling 35,000,000 square yards, 90 per cent of which is of asphalt construction.

The parking problem growing out of this number of vehicles is not only a source of worry to the traffic division of the city, but also of great concern to the Paving Division of the Department of Public Works in constructing and maintaining pavements which will withstand the impact and wear of this rolling traffic, and also in the construction of parking gutters which will resist the constant heavy parking load to which they are subjected by passenger cars and heavy trucks.

Several streets in the city have been constructed in the past with a 7-foot brick gutter on a concrete base, the traffic lane being either sheet asphalt or asphaltic concrete. Brick gutters, however, are costly, averaging more than $3 per square yard, and it is impractical to install this type on old streets that are in good condition except for the gutters. Because of this, the Asphalt Division endeavored to develop a more economical type of parking gutter to be constructed on all streets where heavy parking was prevalent and where the width of the street would permit it.

Problem of Parking Gutters

Sheet-asphalt type construction has prevailed for years in Detroit, owing to its low maintenance record over other types, and in many instances the traffic lanes of sheet asphalt and asphaltic concrete streets which are many years old are in excellent condition, while the parking-gutter areas along curbs are badly indented by the continuous dead weight of vehicle parking. The indentation of sheet asphalt gutters by parked loads, especially in hot weather, has recently been a source of criticism of this type of pavement. This is very difficult to overcome by using the sheet-asphalt type mix. Most sheet mixtures which are designed to withstand the impact and wear of rolling traffic, and which contain sufficient bitumen to resist weathering over a long period of time, are seldom stable enough to resist heavy parking loads during hot summer weather. It is possible to design a sheet mixture of sufficient strength to be able to withstand heavy parking loads without displacement, but when such a mixture is used, it has a tendency to crack excessively owing to the high filler and low bitumen content. In other words, a dense sand-filler mixture designed to resist static loads will in most cases crack under ordinary traffic, while one designed for long life under traffic will mark under heavy parking loads.

When a mixture high in stone content is used in a parking strip,

Construction of a New Gutter: Top, the Forms Set Ready for the Binder Mix in the Gutter; Left, the Loose Binder Mix in the Gutter to Within ½-Inch of the Top of the Forms Before Rolling; Right, the Finished Parking Gutter with Forms Removed

the inherent stability of the aggregate itself when compressed is sufficient to carry the heavy parking load without displacing, and if this is sealed with a thin section of dense mixture in order to protect the large open voids, it will have sufficient weather-resisting properties to withstand deterioration from this standpoint.

A Stable Gutter Paving

The Asphalt Division experimented with several parking-gutter mixtures using high stone contents, and finally selected one which showed up well under laboratory and service tests. Several parking gutters using this type were constructed in districts where heavy constant parking prevailed, such as taxi stands, bus stations, etc., and after three years they have shown up very well both from initial cost and from a service standpoint.

The cost of this bituminous gutter construction averages 80 cents per square yard, and it consists of a binder mixture 3 inches thick, topped with a special stone mixture ½-inch thick. It can be constructed in conjunction with the traffic lane, is of neat appearance, is easily maintained, and resists displacement from heavy parking.

The composition and methods of construction of the gutter "top mixture," when constructing a pavement of 3½ inches thickness (1½ inches binder, 2 inches surface), are generally as follows:

A regular binder mixture is laid to the required depth of 1½ inches for the full width of the pavement. Then 2-inch forms of wood or steel are laid and pegged to the binder course to give the gutter a 7-foot width or more as desired. The extra binder mixture is then raked and rolled between the gutter forms and the curb to bring the binder grade in the gutter to within ½-inch of the finished street grade. After the binder in the gutter is rolled, the special gutter "top mixture" is placed and rolled to a ½-inch compacted thickness, which brings the gutter section to grade. When it has been thoroughly rolled, and while still warm, a mixture consisting of sand, filler and heavy liquid asphalt is luted over the finished surface to close any surface voids, and then rolled in thoroughly. The joint at the curb line is then poured with a small amount of hot asphalt and ironed-in for the width of a smoothing iron.

After the board or steel forms are removed from the finished gutter, exposing a smooth vertical face, the sheet asphalt is laid in the traffic lane and jointed to the parking gutter in the regular manner.

PARKING GUTTER "TOP MIXTURE"
(By Weight)

Stone or slag (passing ¼-inch and retained on 10-mesh)	60%
Sand (regular sheet asphalt grading)	25%
Mineral filler	8%
Asphaltic cement (60-80 penetration)	6 to 7%

COMPOSITION OF SAND-OIL MIXTURE
(Mixed at a temperature of not over 225° F.)

Sand (sheet asphalt type)	89%
Mineral filler	6%
Road oil (SC-4A grade)	5%

Paving at "Stop" Streets

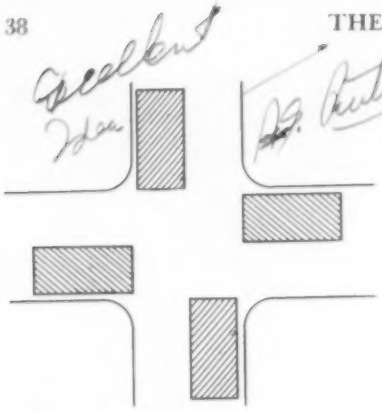
The same mixture and method of construction can be used advantageously at intersections of heavy-traffic stop streets where constant braking of vehicles often causes displacement of well-designed sheet asphalt or asphaltic concrete mixtures which have become softened somewhat by oil drippings. At these points an area extending from the center line of the street to the curb and about 50 feet in length from the curb line of the intersecting street is paved, as illustrated.

Pouring a Curb Joint

Non-Skid Sheet Asphalt

In addition to the parking-gutter construction, the Asphalt Division has also adopted a method of finishing sheet-asphalt surfaces whereby the use of portland cement as a brushed-on finishing coat is eliminated. Newly finished sheet-asphalt surfaces are sometimes rather slippery owing to a thin film of as-

Construction of a Parking Gutter on an Old Street Without Forms: Left, Laying the Binder Mix; Right, Laying the ½-Inch Top Mixture; Above, the Oil-Sand Mix Being Luted over the Finished Gutter Surface



Location of Specially Paved Areas at Stop Streets

phaltic cement being drawn to the surface by the action of the roller on the hot mixture, and the usual application of portland cement on this surface seems only to intensify the slipperiness. As a rule, when this thin film of asphalt is worn away by traffic and the sand-grain surface is exposed, the slipperiness disappears. Traffic usually requires four to six weeks to accomplish this wear.

By using a special graded sharp sand or slag, a finished surface is created during construction which approaches the surface ordinarily created by a month's wear of traffic. The appearance of the finished job is not quite as attractive as when portland cement is used, but this is easily offset by the non-skid results obtained.

If white marble screenings of the same grading are used in place of the sand, it not only affords a non-skid finished surface but also increases the reflection factor or brightness of the pavement to a considerable degree. The screenings are spread with a small two-wheeled hopper which has a handle control that operates the spreader openings. The spread is made in a diagonal direction in order to keep down the scraping action of the wheels when reversing.

The rate of application is approximately 2 to 3 pounds per square yard, and the screenings are applied to the hot surface after the roller has made four to six passes over the freshly laid material. No water is used on the roller wheels after the sand or screenings have been applied, but rolling is continued until all roller marks are eliminated and the screenings are embedded firmly in the surface.

Grading of screenings or sand used for non-skid effect (sand, slag or white marble chips):

Passing 8 mesh sieve — 100%
Passing 30 mesh sieve — Not more than 2%

Public Ownership and Economic Opportunity

By DAVID E. LILIENTHAL
Director, Tennessee Valley Authority

From a discussion of the kind of economic opportunity that facilitates a continuous and major expansion in the production and use of goods and services and a constantly rising standard of living for the whole people, on January 15, 1940, before the Columbia Graduate Economics Club of New York:

THE average man and woman must not be forced to pay for a rising standard of living by the sacrifice of his civil liberties to the demands of a remote and over-centralized government over which he can exercise little effective control. Neither must he in exchange for a rising standard of living yield up his economic destiny to a concentration of business groups so powerful that the small business man or farmer must submit to the conditions they impose, or perish. . . .

The safeguarding and stimulation of economic opportunity has been a constant function of our governmental leadership since the first hours of the Republic. That historical fact is too often hidden in these days, buried beneath floods of nostalgic oratory, pleading for an early return to a Never-Never Land of Free Enterprise—a state that, like the Emerald City of Oz, never did exist. From the days of Alexander Hamilton and the first "protective tariff," designed to build up New England factories and thereby the national well-being, to the granting this morning of an airline certificate to protect an aviation company from uneconomic competition, government has always been called upon to intervene in the development of private business. Time and again government has restricted the freedom of action of one kind of business enterprise in order that the freedom of *other* businesses might be widened. As we look back today, we see that some of these activities were not in the general public interest; others were wise and productive. But invariably, when the government has acted to protect, to promote, to discourage or restrict business, it has been compelled to justify its action and it has had public support only where the objective could be shown to be the general good.

Nor is it true, as is often asserted these days, that all our hopes of expansion and increased production depend solely upon private business, that government never produces or adds to wealth. Such talk is sheer nonsense. Some of your subway lines here in New York are privately owned and some are public. To say one is productive enterprise, the other not, is absurd. The automobile industry is an outstanding example of private enterprise; the modern highways of the United States are a spectacular illustration of public business. Both are equally a manifestation of the American spirit of enterprise; both are productive. The true relation of these two undertakings is illuminated by this fact: that without modern highways, publicly built and publicly financed, the brilliant record of private enterprise in the automobile industry would never have been written; and, of course, without the automobile pioneers the modern highways would not exist.

The issue of governmental action versus free enterprise is a thoroughly false and mythical issue. Only an economic illiterate would deny that to secure and promote economic freedom governmental action has often been appropriate and necessary; and only a doctrinaire would assert in the face of facts everywhere about us that private business is the sole fountainhead of economic progress.

The real question is, always: Does this *particular* governmental action promote and protect economic opportunity for the whole people? In the long run is all enterprise, private and public, promoted by this particular governmental intervention or activity?

New Rapid Sand Filters Equipped with Surface Wash to Prevent Mudballs at

Historic Filtration Plant at Lawrence, Mass.

By Theodore Reed Kendall
Engineering Editor,
The American City

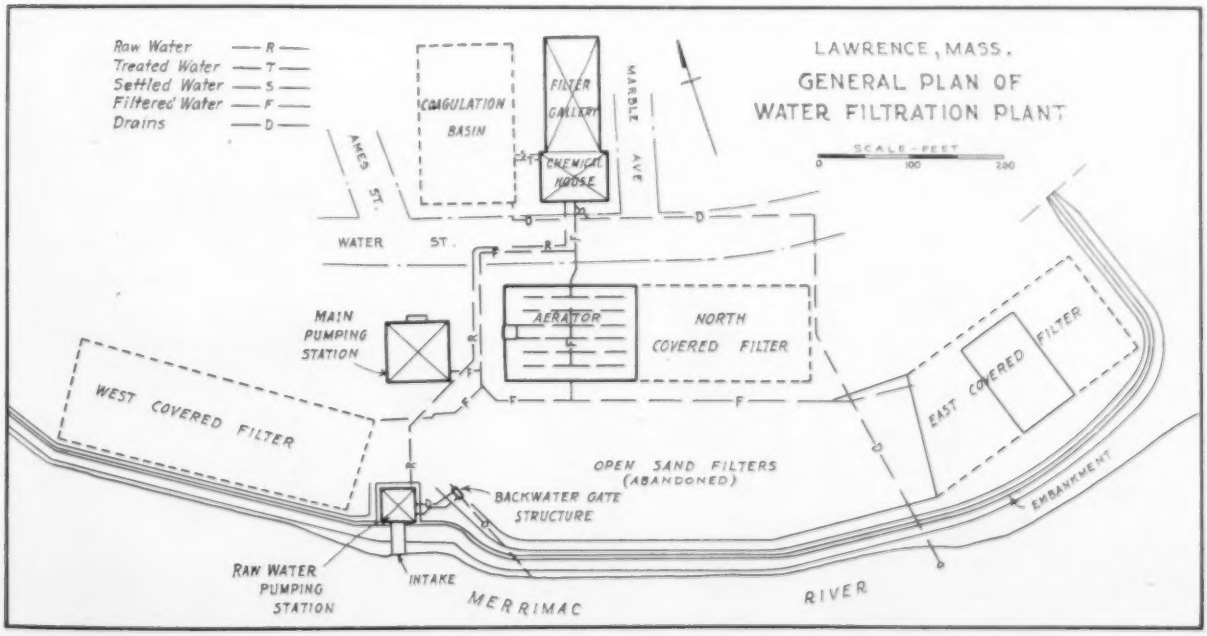
THE classic story of the great reduction in typhoid fever in Lawrence, following 1893, when the first slow sand filters were installed, is a matter of long-time record. Recently the city has established another record by including many new features in its well-designed new 10-mgd rapid sand filtration plant, outstanding among which is the installation of surface wash for the filter sand as insurance against the bugaboo of mudballs.

The new plant is located at the site of the old slow sand filtration plant, but on both sides of Water Street, with the raw-water pumping station, main high-lift pumping station and aerators between Water Street and the Merrimac River, and the filtration plant, chemical house and coagulation basin on the north side of Water Street. Great care was exercised in the design of the plant between Water Street and the river, to insure that all vital parts were protected from high-water stages of the river even in case the high protective embankment was topped by record floods.

Source and Raw-Water Pumping

The intake at the raw-water pumping station is of concrete equipped with trash racks to keep out large floating objects. Smaller objects and leaves are removed by two Rex traveling water screens with 3/8-inch mesh, which are operated twice a day for twenty to thirty minutes, depending upon the amount of material accumulated. The screen-house floor is 3.5 feet above the highest recorded flood of the Merrimac River at this point. The substructure is heavily reinforced against external water pressure, and massive to provide dead weight against flotation. Further protection against damage to the motors is furnished by arrangements whereby the motors can be picked up and hung from the ceiling of the pump-house if necessary. A 1,000-gpm Yeomans vertical centrifugal drainage pump in the basement delivers water against a head of 23 feet over a loop above high-water elevation to a pipe running out to the river and equipped with a back-water gate. This pipe also carries the water from the screen washing sprays.

Three raw-water pumps have been installed, and there is space for a fourth. These pumps comprise a 5-, a 6-, and a 7-mgd Allis-Chalmers vertical centrifugal equipped with Allis-Chalmers 40-, 40-, and 50-hp motors. The delivery of raw water is measured by a 30 x 14-inch Builders Iron Foundry venturi meter located in the discharge line which delivers water beneath Water Street to the chemi-



cal house. There is a gage on the suction and discharge of each pump to keep tabs on its operation, a check-valve and a gate-valve on the discharge, and a gate-valve on the suction of each pump, to permit isolation of each pump for cleaning or repairs. There is also a small sump pump in the dry well which delivers water to the yard drainage pump discharge.

A complete Allis-Chalmers switch gear is located on the ground floor of the raw-water pumping station, where any pump in the station can be tripped to throw it completely out of service so that it cannot be operated by the usual push-button control in the raw-water pumping station or the remote control in the filtration plant. The pumping station is heated by steam in Dunham unit heaters, the condensed steam being returned to the main station by a Jennings vacuum heating pump driven by a Westinghouse 1-hp motor. A similar method of heating is used for all buildings connected with the water works, the steam being supplied by the central oil-fired steam heating boilers in the main station.

Rapid Mix

The 30-inch cast iron raw-water discharge line enters the chemical house of the filtration plant on the north side of Water Street, where the flow is controlled by an hydraulically operated 24-inch Dow pivot-valve furnished by Chapman

Entrance to the Chemical and Filter Building

Valve Mfg. Co., and controlled by floats on the mixing basin and also the settling basin. The raw-water line then divides, with one branch leading to each of the 20 x 20 x 18-foot water deep-mixing tanks, which may be operated in series or parallel. At present the mixing basins are being operated in series.

The mixing tanks are equipped with two New England Tank & Tower Co. vertical shaft paddles, each operating at 0.5 to 2.0 rpm. In the No. 1 mixing tank the alum is applied, and the best speed of the mixing blades which are set to lift the water at the center has been found to be about 19 feet per minute. The paddles in the No. 2 mixing tank operate at about two-thirds the speed of those in the first tank and in a clockwise direction, while those in the first operate counter-clockwise. These directions are both in the direction of flow of the water in the two tanks respectively. The detention period is 7½ minutes in each tank when operating in series at 10 mgd. The treated water is pre-chlorinated in the second mixing tank.

Coagulation Basins

Water from the mixing tanks flows through the pipe gallery to the coagulation basin, which is divided into five separate units of 95 x 33 feet each and varying from 14 to 16.5 feet water depth, giving a detention of 4 hours at the 10-mgd rate. There are three Dorrco flocculators in the first quarter of each basin, equipped with three paddles each and having a diameter of 11 feet. These flocculators are driven at a speed varying from 25 to 100 fpm by a G.E. motor through a Link-Belt speed control. Suspended baffles between the flocculators aid in insuring the optimum results from these units. A push-button control at each section of the settling basin can be used to start or stop each unit.

Pipe Gallery

The design of the pipe gallery is a joy to any operating man, because every control valve and pipe is readily accessible, and a mezzanine of Irving subway grating permits the maximum of light from the numerous well-spaced lighting units, and easy removal to

The Filter Operating Floor of the Lawrence Plant

reach all equipment. In addition, there are many wall-plugs available for extra lights or for furnishing power to small electric tools. Cleaning of the pipe gallery and mezzanine is possible by merely attaching a hose and hosing down pipes, valves, ceiling and walls, the drainage all flowing to the two sump pumps located at the front and back of the lowest section of the pipe gallery.

An Allis-Chalmers 400-gpm pump operating against a 23-foot head located in the pipe gallery can be used to drain any one or all of the settling basins, by the manipulation of hand-operated valves. It discharges into the 24-inch main plant drain, which leads direct to the river about 200 yards below the raw-water intake.

Three voltages of alternating current are available in the plant. Current enters at 2,200 volts and is reduced to 208 volts and 120 volts for the various services. The master switches for all equipment in the filtration plant are located on the main switchboard in the pipe gallery.

Wash-Water Pumps

Water for washing the filters is stored in two wash-water tanks located beneath the four southerly filters and having a total capacity of 125,000 gallons. During a wash the water is drawn from these reservoirs by one of the two 10-mgd Allis-Chalmers vertical centrifugal pumps operating at a 45-foot head, and controlled by a 24-inch Builders Iron Foundry rate controller. The wash-water storage tanks are refilled by bleeding from the filter effluent line through a 10-inch cast iron line.

Filters

The plant is designed for ten filters, but two of them are not as yet equipped. Each filter is 18 feet x 20 feet 4 inches sand area and has a capacity of 1 mgd. The underdrains are of perforated cast iron pipe, covered with 18 inches of graded gravel, on top of which is 30 inches of filter sand with an effective size of 0.46-mm and a uniformity coefficient of 1.9. The tops of the three metal wash-water troughs in each filter are 30 inches above the top of the sand. A head of 5 feet of water is maintained above the sand. The operation of the filters is controlled from Norwood tables with five hydraulic valves on each table, and the rate of flow of the filters is maintained by 10-inch Builders Iron Foundry rate controllers.

The wash-water troughs run parallel with the filter gallery, instead of perpendicular to it as is usually the case. At the end of the filter gallery above the doorway is a large Telechron clock, an indicating dial on the wash-water meter, and the indicator showing the inches rise per minute of wash water. At the right of the doorway is the depth gage on the wash-water storage. The rate of washing is 24-inch rise per minute, but may be varied up to 34 inches, as desired, by adjustment of the rate controller.

Surface Wash

The surface wash system consists of a 12-inch header running across the end of the filter opposite the drainage end, with 8-inch laterals reducing to 6-inch carried over the top of each wash-water trough, and 1½-inch pipe reduced to 1-inch in the form of inverted U's giving 42 nozzles for each filter bed. Each nozzle gives a high-pressure spray directed against the filter bed immediately below it and creating a definite stirring action during the regular backwash. The controlled surface wash is used for about two minutes before backwashing is started, and is continued for five additional minutes. About 50 per cent of the area of the bed is hit directly by the water from the surface wash nozzles. When refilling a filter after washing, the valve is cracked so that the head is not dropped on the other filters.

Chemical Storage and Application

The chemical storage and chlorination room is located on the second floor of the chemical house at the front of the filtration plant. An Otis freight elevator is used to carry alum, lime, activated carbon and chlorine cylinders from the ground floor to the second floor.

The Aeration Basin with the River Levee in the Right Background

The hoppers to the six Syntron dry chemical feed machines open from the second floor, and the chemicals in solution or suspension are applied from the bases of the machines located beside the two mixing tanks through long, heavy rubber hoses. This method permits quick change of points of application of the various chemicals and also permits the use of any machine for any chemical.

On the second floor is also located the chlorine room, where two Wallace & Tiernan manual-control solution feed machines are installed with Fairbanks platform scales for checking the weight of chlorine applied, and with manifolds at each machine permitting attaching up to six tanks for each one of the machines.

(Concluded on page 52)

The Sanitary Fill as Used in Fresno

Area and Method Used Described and Discussed at American Public Works Association Convention

THE large amount of discussion of garbage dumps and sanitary fills during the past ten months in the technical press led to the presentation of a paper on the disposal of garbage by the sanitary fill method in Fresno, Calif., at the last convention of the American Public Works Association. An abstract of this paper, read by Jean L. Vincenz, Commissioner of Public Works of Fresno, together with some of the discussions of the method which took place at that time, is herewith given.

Starting the Sanitary Fill

The first sanitary fill in Fresno was made at the City Sewer Farm, which was three miles farther away from the city than was desired, but readily available for the first experimental fill. The area was a perfectly flat field, and the first operation was started several hundred feet from the main road, using a ½-yard P & H dragline with a 40-foot boom. First, a ramp was constructed three to four feet in height, by digging a ditch or trench about three feet deep and piling the dirt to form a ramp on one side of the trench. The trench was from 20 to 24 feet wide, and the ramp was just wide enough to allow the trucks to maneuver and back up to the edge of the ramp and dump their loads into the trench.

The collection trucks in Fresno are not equipped with a dump body, but have a false tail-gate placed at the head of the truck, which is pulled back by means of a chain that is laid in the bottom of the truck and slides the garbage into the trench. There is no objection to the use of a dump-body truck for this service if it is desired.

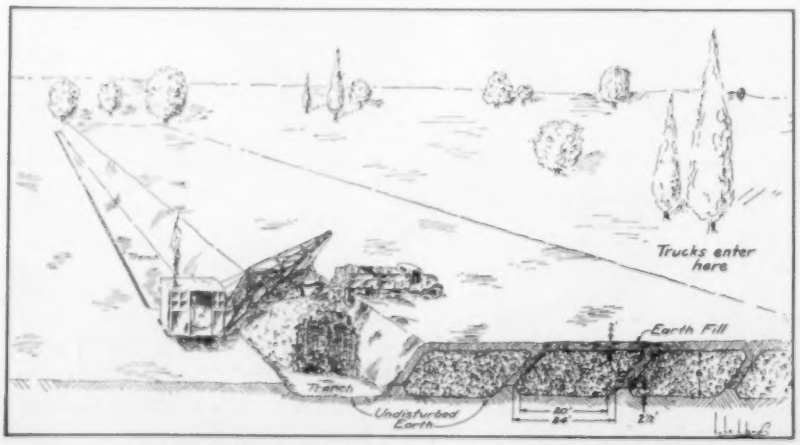
As soon as the garbage is dumped, the dragline levels off the garbage and compacts it by dropping the bucket on the pile. Then covering is started. This is done by digging a second trench parallel to the first and adjacent to it, using the dirt from the second trench to spread on top of the garbage and compact it by allowing the bucket to drop on the earth covering. The depth of the garbage in the first and second trenches was increased to continue the slope of the ramp until a depth of about 8 feet of garbage was reached. Then the fill was leveled off. The illustration shows a compacted and settled cell of garbage 6 feet in depth, while in the latest disposal area the depth has been increased to 10 feet.

The depth of the compacted earth covering should not be less than 24 inches, and Mr. Vincenz stresses the statement that it is necessary to cover the side slope thoroughly with earth. By the method used in Fresno, it is possible to get as much dirt as desired merely by cutting the trench deeper.

When one of the trenches has been filled, a motor patrol grader runs out to the fill and levels off the top of the last trench so that the trucks can move easily on the completed fill and turn and back onto the last completed trench at the far end of the fill, where a new trench is begun. If the motor patrol grader is not handy, an ordinary drag may be used for the leveling.

It is advisable to grade the top of the fill so that it will drain quickly after rains. Mr. Vincenz points out that the sanitary-fill system works better in sandy soil than in clay soil, and that there will be more difficulties in locations where the winters are severe. These include rain, snow and cold, but they have compensation, for rain prevents fire in the trenches where it may be impractical to cover the trenches in a short time.

Discussions at the meeting showed that if garbage is not covered, fires will invariably break out. Every endeavor is made at Fresno to prevent fires in the fill, because they spoil the anaerobic decomposition of the garbage. With this in mind, no fires of any kind, nor any burning, is permitted at the site of the sanitary fill. Fresno is fortunate in having a well at the site of the sanitary fill, from which water is pumped to put out the few fires that do occur. In the further discussion Mr. Vincenz said that they have excavated into the sanitary fill five years after the fill was completed, and have found the odor nauseating. The garbage had entirely disappeared, but it was



Scheme of Operation of the Sanitary Fill at Fresno, Calif.

still possible to read the print on paper which had been buried for this period of time. Up to the fall of 1939 there had been no planting on this sanitary fill, but before winter a parcel of wheat was to be planted.

Rodent Control

Since there had been some trouble with rats at other sanitary fills, particular care was taken to prevent a repetition at Fresno. Before operations began, the State Sanitary Inspector was invited to the site to give instructions on rodent control. After studying the methods which were to be used in Fresno, he pointed out that there would probably be no trouble from them. Experience at Fresno has shown that rats will not burrow through more than six inches of earth, and practically never through as much as twelve inches. Ground squirrels and some other small animals may burrow for greater distances, so that it is advisable to watch regularly for such holes in order to keep the rats from having any chance at all to get into the fill. The method used at Fresno is to smooth and drag all such holes and cover them promptly. The State Inspector makes regular calls, and Mr. Vincenz reports that no one has ever seen a rat on the fill.

New Site Used

After 2½ years of operation of the fill at the sewer farm, people owning adjacent property were able to see the character of the work being done. Some trees were planted about the site, and precautions were taken to keep the fill clean and neat.

By newspaper advertising and through real estate agents, the owners of property in an area somewhat nearer the city were invited to submit their properties for sale to the city for use as a disposal site. Bids were received on seven or eight different parcels which were appraised, and in several cases the prices were lowered to meet the appraisals and then the best site of the group was selected. As so many property owners in this district had offered their property for sale to the city as a disposal site, they were not in a position to protest the use of the site finally selected, as had occurred three years previously.

A 90-acre site was purchased and operations were begun as before, starting the work several hundred feet back from the main road. This site is about three miles from the City Hall and has been in use for 2½ years. The only complaints received came from some people living on a very small farm about one mile away, and they stated that large rats from the fill were bothering them. This complaint was sent to the chief sanitary inspector of the state, whose men investigated and found the source of the rats was in the neighborhood of the small farm and not the disposal fill.

COST DATA FOR THE YEAR JULY 1, 1938 TO JUNE 30, 1939

Service Revenue	Paper Sales	Misc.	Permits (Swill)	Total
$119,239.68	$3,290.16	$346.60	$450.00	$123,326.44

	Gathering Cost	Disposal Cost	Administration
Payroll	$61,943.10	$4,272.00	$17,372.90
Truck operation	4,279.71	Operation 2,153.19	
Truck maintenance	2,237.99		
Misc. expenses	10,165.13	805.26	5,514.62
	$78,625.93	$7,230.45	$22,887.52
Total operating expenses			$108,743.90

TOTAL COST PER TON OF REFUSE

Gathering	$2.37
Disposal	.22
Administration	.69
	$3.28

Note: For 100 per cent depreciation of land at disposal fill add 2 cents to cost of disposal.

Total tons of mixed garbage	24,306
Total tons of garden refuse	8,905
Total cubic yards of mixed garbage	110,482
Total cubic yards of garden refuse	66,955

Collection and Disposal Costs

No separation of garbage and refuse is required in Fresno. Garbage, bottles and papers and all other miscellaneous refuse are collected, including tree and lawn trimmings. A charge is made to the householder for this service at the rate of 45 cents per month for one collection a week of 30 gallons of mixed refuse, or 80 cents per month for two collections weekly. In addition, one collection monthly is made for the 45-cent customer, and two collections monthly for the 80-cent customer, of all garden rubbish, such as prunings of trees and shrubs, and grass cuttings. No limit is placed on the quantity picked up under this service.

In the fiscal year 1938-39, a total of 110,000 cubic yards of refuse, for which a charge was made, and 67,000 cubic yards of garden rubbish, for which no charge was made, was collected. These figures are for an average of 13,000 customers. The weight of the mixed garbage and refuse averages about 440 pounds per cubic yard, while that of the rubbish is about 266 pounds per cubic yard. Most of the rubbish is at least partly combustible, and inasmuch as it is collected by trucks that do not haul garbage at the same time, the rubbish is being dumped at the street sweeping department dump and burned on the dump. This dump has been in operation for 30 years, and there have been no complaints.

The cost of disposal at the sanitary fill, including the salary of the dragline operator, all maintenance, repair and operation costs, and depreciation of the second-hand dragline, together with a complete write-off of the purchase price of the land at $150 per acre, is 24 cents per ton.

Area Required

In Fresno a total of 4 1/3 acres is required per year with a compacted garbage of 8 feet. This figures about 0.7-acre per 10,000 population per year, for Fresno's population of about 60,000. Converting this into requirements for a large city, about 70 acres of land per million population per year would be required for the disposal of garbage and rubbish by the sanitary-fill method. Thus far, no experience is available on double-decking fills after the period of complete subsidence of the original fill.

In quoting from THE AMERICAN CITY please give credit

Making a Landmark of an Elevated Tank

Architectural Treatment of Old Water Tank in the Town of Darien, Conn.

By EUGENE CLUTE

PHOTOGRAPH BY STUART CAMPBELL

The Old Elevated Steel Tank at Darien Before the Tower was Started

AN old water tank, elevated to give added pressure for domestic and commercial services in many cities, and sometimes occupying a prominent position on the skyline, can be transformed at moderate cost into a feature of architectural beauty. A recent transformation of such a tank on a tall steel tower in the town of Darien involved the enclosure of the tank in a well-designed tower created by a method which seems not to have been used previously for this type of structure, although it has proved advantageous in other fields.

Although the tower is approximately 126 feet high and 52 feet in diameter at the base, its walls are only 2 inches thick, built up of concrete reinforced with light vertical ribs and horizontal bands of steel, and with wire mesh and small reinforcing rods to stiffen it.

The saving of material, due to the thinness of the walls, is only one factor in its economical construction. The method of depositing the concrete is also especially economical. A wooden form was required only on the inside. The concrete was applied as Gunite from a nozzle, being blended as discharged from the nozzle, packing it tightly around the system of reinforcing bars and steel mesh.

The enclosing tower is entirely independent of the water tank and its supports and does not touch them at any point. It has already proved its ability to withstand the severe storms that sweep this coastal region. After the tower had gone through one winter, the walls showed no cracks whatsoever. This is attributed, at least partly, to the horizontal steel rods embedded in the wall and joined into bands by means of sleeve nuts which were tightened when the concrete had taken a satisfactory set, thus eliminating shrinkage stresses in the wall.

The architectural features of the Darien tower may be looked upon as modern, like its method of construction, or ancient, like the rare monuments of Persia and China, which it recalls.

The structure was built by the National Gunite Contracting Co., of Long Island City, N. Y., for The Noroton Water Co. from the architectural design of Frank J. Forster, architect, of New York City. The water company did the work at no cost to the community. Whether financed in this way or by the municipality, such an improvement, which adds to the attractiveness of the community, thereby tending to increase growth and prosperity, has all the marks of a good investment.

PHOTOGRAPH BY GEORGE H. VAN ANDA

The Completed Enclosure Around the Elevated Water Tank at Darien

For New Subdivisions--All Public Utility Services

ATTENTION is called by Angus MacNeil, Treasurer of the Massachusetts Federation of Planning Boards, to the fact that cable engineers have so improved and developed their products that power and light, communications, telephone and municipal protective signaling underground cables no longer require expensive and costly conduits in which these cables have been heretofore installed in new subdivision developments.

The subdivision with ornamental street-lamp poles *only* exposed is now possible at a slight excess in cost to the developer over the subdivision served by public utility poles.

These facts present an opportunity to encourage better and more sightly new communities by municipal authorities. Already in some towns the utilities engineers have at the request of the developer cooperated to the end that new streets are adequately served without overhead wires and cables upon distribution poles.

The fuller use of planning will enable the public utility services, gas, power and telephone, to be constructed in joint trenches of their own, or with the municipal services, water, sewer and storm-drain, with resultant economy and betterment of community appearance.

Street Improvement in St. Paul

Six Blocks of East Sixth Street Repaved with Two-Course Asphaltic Concrete and Brick Gutters

THE old creosoted wood block paving is rapidly disappearing in St. Paul, Minn., as new contracts are awarded for improving the streets in the central business section. One of the most recent is a six-block job on East Sixth Street, where the creosote blocks were removed from the 40-foot roadway and the street improved with two 6-foot brick parking gutters and a 28-foot roadway of two-course asphaltic concrete. The 6-inch concrete base under the wood-block paving was not disturbed, because of its excellent condition, and was used again as a base for the new pavement.

Brick Gutters

Brick must be laid with unusual care on the very flat grade of East Sixth Street, to prevent pooling anywhere in the length of the blocks between catch-basins. Brick is chosen for gutter paving in St. Paul because it does not deteriorate under oil droppings from parked automobiles and does not soften in hot weather and permit tires of parked cars to leave their imprints, which later become filled with water in wet weather and with dust in dry. The extra cost of the brick is believed by the Department of Public Works to be well warranted for this purpose because of its impermeable character.

In laying the brick gutter, an oil-sand cushion is first spread and screeded on the concrete base to ¾-inch strips to insure uniformity. The mastic is made up with 5 to 6 per cent road oil of 60 to 70 per cent asphalt mixed with the sand in a small concrete mixer. The 2½-inch vertical fiber lug brick are laid and then rolled with a 5-ton Austin Pup roller on the work done by the Feyen Construction Co., of St. Paul, contractors for this job. The contractor used two pavers, one on each gutter, with three or four men carrying brick to them.

After rolling, the tops of the brick were sprayed with a solution of calcium chloride and starch to prevent the asphalt joint filler from sticking to the top of the brick, and then the filler was poured onto the gutter brick with coal-scuttles and squeegeed into the joints. As soon as the material had hardened, the excess was scraped from the surface with ordinary scrapers by hand. Even with the greatest care, it was found that the filler has a tendency to sink deeper into the joints on hot days, and the removal of some brick by the contractor on his own volition to raise low spots when a rain had caused pools, showed that there were bound to be some bubbles of air in the joints with the present approved methods of pouring the joints. It is into these voids, caused by entrained air, that the filler material settles as the brick are heated by the hot sun; hence some joints will have to be re-poured on any job, no matter how careful the contractor may be. The only apparent way out is to leave the excess asphalt on the surface for a longer period, but this will prevent the opening of the street to traffic as soon as would be desired.

Contractor's Asphalt Plant

The asphalt plant used by Feyen for preparing the asphaltic concrete for this job was located in his yard about two miles from the work. A novel method of feeding the cold elevator of the plant was used which might be tried on most installations of similar plants. Stockpiles of the stones and sands used were spotted near the plant and loaded with a Northwest crane into woden hoppers, the bottoms of which sloped toward the boot of the bucket elevator. A slide gate in the bottom of the sand hopper controlled the rate of flow, and if the material arched, a simple small battering ram wielded by the laborer in charge started the flow again. A similar gate at the side in the stone hopper regulated the flow of that material.

The drier of the 1,300-pound batch plant made by Warren Brothers of Boston is oil-fired and

Left—The Contractor's 1,300-Pound-Batch Hot-Mix Plant. Right—Spreading and Raking Hot Surface Material

Compacting the Top with a 10-Ton Roll-A-Plane Roller, and Sealing the Surface with Asphalt Emulsion

is 54 inches in diameter and 20 feet long. The dry material is raised to the screens and then delivered to three bins, two for rock ¼- to ⅝-inch and ⅝- to 1¼-inch, and the other for the two grades of fine and coarse sand used for this work. A separate bin is used for the dust. The 1,300-pound batches for the work are composed of the following weights for the binder course: 820 pounds of ¼- to 1¼-inch stone; 337 pounds of sand; 78 pounds of dust; and 5 per cent asphalt. For the top course the weights are: 690 pounds of stone; 450 pounds of sand; 85 pounds of dust; and 5.8 per cent asphalt. The mixing time after all the materials are in the pug-mill is one minute and twenty seconds for top, and one minute for binder. The asphalt is stored in a heated 25,000-gallon tank next the plant and is pumped through a return loop with a valve and delivery pipe over the asphalt weigh kettle.

Spreading and Rolling on the Street

The binder course varied from 2 to 2½ inches thick, because the crown of the street was changed slightly from the old crown to give a uniform 6-inch rise for adequate drainage without any side slope apparent to operators of motor vehicles. The top course was 2 inches thick.

The hot materials were hauled by five of the contractor's own trucks and one or two additional as needed for quick service. The materials, both binder and surface, were dumped directly on the road and then completely moved by forking to the final position in the road surface or base as desired. Five men were used for forking, three for raking, and there were one man with a 10-foot lute and one tamper at the edges against the brick gutter where the roller could not work. All the men working in the hot asphaltic mixture were equipped with wooden clogs or sandals to protect them from the heat.

The binder course was rolled with a new 10-ton Austin Roll-a-Plane, and the same machine was used for breakdown on the top and an 8-ton Buffalo-Springfield steam tandem for final and cross rolling. It is interesting to note that the character of the aggregate for the binder and top courses was different although the screen sizes were the same. Trap-rock was used for the top, and limestone for the binder course. The surface was sealed by brooming 0.3-gallon per square yard of asphalt emulsion over it and then spreading from 7 to 10 pounds of trap-rock chips over the surface and rolling them in. The reason given for the use of the asphalt emulsion for the seal is that it does not pick up under traffic, and that it breaks during the rolling-in of the chips. The resulting surface is about as non-skid as can be imagined, because it has the sandpaper finish that grips tires so well.

The work on East Sixth Street, St. Paul, was done under the direction of the Department of Public Works, George M. Shepard, Chief Engineer. The contractor displayed considerable civic interest in this work in his own city. Harry M. Feyen was in charge for the Feyen Construction Co.

To Replace Confusion with Clarity in Manhattan's House Numbering

A BILL authorizing the Borough President of Manhattan to change the numbering system on north-and-south avenues in Manhattan has been introduced in the City Council of New York, under non-partisan auspices.

Beginning at 8th Street, each building will have a hyphenated number—an index number designating the nearest crosstown street on the south, and the building's individual number. Even numbers will be on the east side of the avenues, odd numbers on the west. Thus the northeast corner lot of 5th Avenue at 8th Street will be known as 8-00 Fifth Avenue, the next building north will be 8-02 Fifth Avenue, and so on. The plan also calls for other regulations for greater visibility and uniformity of house numbers.

In order to avoid waste in stationery supplies, calendars and other printed material having addresses, the bill proposes as its effective date January, 1941, thus giving all business groups a year for preparation.

The initial suggestion for revision of the system came from Postmaster Albert Goldman, but the details of the plan were worked out in the office of Borough President Stanley M. Isaacs, after a number of conferences with representatives of various city departments, business and civic organizations, and the postal authorities. The bill has the support of major business groups.

The new system will be more convenient not only for business groups and persons engaged in deliveries, but also for out-of-towners, who will find traveling about New York City much easier. In many respects the system resembles that already operating in Chicago, Philadelphia and other large cities.

New Primary Sewage Plant at Ypsilanti, Michigan

Primary Treatment Sewage Works Includes Clariflocculator and Clarifier Operated in Parallel

LOCATED in a 5-acre tract donated by the Ford Motor Co., and on the edge of the large lake created by the Ford hydro development, the new primary sewage-treatment plant of Ypsilanti offered some interesting problems of construction and, as an operating plant, is being used to study the effectiveness of the new Clariflocculator. The plant was placed in operation on November 1, 1938, as part of the expansion program which included new intercepting sewers designed for twice the present flows of 1.5 to 3.0 mgd, and the construction of a new sewage-pumping station.

Entrance to the Service Building of the Ypsilanti Sewage Plant

Sewage-Pumping Station

The sewage pumping station, about ¼-mile from the plant, receives the entire flow of the city by gravity and then boosts it to the treatment plant. It is a three-story building with two floors below ground level. The sewage enters in a wet well and flows through a Chicago Comminutor, which cuts up the solids. There is an overflow weir and bar screen which can be made use of in cases of emergency.

Three De Laval sewage pumps with Westinghouse motors are located in a dry well next to the sump, with the shafts running up through well-supported bearings in the intermediate floor to the motors at ground level. The pumps are of 500, 800, and 1,600 gpm capacity and are cut in as required automatically. As they are located in the dry well below the level of the sewage in the sump, they are self-priming at all times. They discharge through a 16-inch Transite pipe line 1,600 feet long to the sewage-treatment plant. The largest pump has a suction opened by a valve from the ground floor, so that it can be used to unwater the pump floor in case of flood. Each pump has a check-valve on the discharge line to prevent back-spinning when the next larger pump is running. They are operated from a 4,800-volt primary line, 220 volts being used for the pumps. The static and friction head against which the pumps operate is about 25 feet.

The Clarifiers

The sewage enters the treatment plant through the 16-inch line, and at the division there is a pitcher pump for sampling the raw sewage. This has had to be guarded carefully because visitors have mistaken it for a special well for drinking purposes. The flow is divided

General View of the Ypsilanti, Mich., Sewage Works, Showing the Clariflocculator in the Foreground, Then the Clarifier, and, in the Right Background, the Glass Covers for the Sludge Beds

immediately through two similar pipes equally to the two clarifiers. There is a 12-inch cast iron pipe around which is a 2-foot 6-inch steel pipe with spiral fins welded to the inside so that the path of the sewage is somewhat increased as it flows between the inner pipe and the outer spirally baffled pipe. This is believed to be somewhat effective in starting the flocculation of the sewage ahead of the clarifiers and thereby increasing their effectiveness.

The Clariflocculator is the same size as the straight clarifier but has a special center compartment that is something new in sewage treatment. The clarifiers are 40 feet in diameter and 9 feet deep at the wall and 12 feet 2 inches at the center. In the Clariflocculator a center compartment 18 feet in diameter is created by a ring of sheet metal carried to a depth of 9 feet. Within this enclosed space two sets of moving stirring vanes move at 1½ rpm between four sets of stationary baffles. There are five vertical vanes on each rotating arm. The sewage enters at the bottom through the center shaft and flows upward and then out through ports just below the surface of the sewage. Around these ports is a part of the rotating mechanism which also has ports in it so that the sewage has to work its way through to the 20-foot space inside the ring. The flow is radial to the weirs at the annular ring suspended at the edge of the clarifier. With the flow divided equally to the two clarifiers, the retention period in the Clariflocculator is 32 minutes in the flocculating section at the center, and 130 minutes in the outer section.

A novel method of removing the scum from the outer section of the Clariflocculator insures a complete and quick flow away from the surface. A scum board is attached to the slow-moving arms of the sludge scraper mechanism, but operates in the outer annular ring. As it approaches the bridge that supports the revolving mechanism, a baffle is let down from the bridge so that it is just below the surface of the sewage. Then, just as the scum board approaches the baffles, a plug-valve in a small compartment opening from the outer ring is pulled up and the sewage starts to flow rapidly toward it. This surface flow pulls the scum quickly away from the scum board, clearing the surface. The scum flows to the scum sump and is pumped to the digesters.

Close-up of the Clariflocculator

Careful analyses of the effluents of the Clariflocculator and the other radial flow clarifier show that the first unit gives, in general, about 10 per cent better results in removal of suspended solids. The original plans for this plant contemplate future construction of another pair of clarifiers and two more digesters. The piping for these was included in the original construction.

The sewage-treatment plant is receiving the softening sludge from the new water-softening plant through the main interceptor sewer, which passes within a few feet of the water plant. This sludge seems to drag down the suspended solids in the sewage, thereby producing a better and clearer sewage effluent.

Chlorination of the Effluent

The flow from the two clarifiers combines in a center channel and goes to a 28,000-gallon chlorine reaction tank, where it receives 25 pounds per million gallons of chlorine in solution. The reaction tank and the outfall sewer, which has a capacity of nearly 12,000 gallons, gives about 40 minutes' contact between the chlorine and sewage before it is discharged into the lake. The sewage is chlorinated only between May 15 and September 15, the bathing season in the lake. The chlorine application chamber, a small section between the clarifier effluent line and the recation chamber, has over- and under-baffles of wood, while the reaction chamber has around-the-end baffles.

Chlorine is purchased in 1-ton containers, which are delivered by truck to the plant and unloaded by a Detroit Hoist & Machine Co. electric hoist running on an overhead rail with a switch so that the containers can be run back and lowered through a trap door in the floor for storage in the basement, or run to the side to the platform of the Kron scales. The chlorine is applied to the effluent by a Pardee chlorinator.

Sludge Digestion and Pumps

At present there are two fixed cover sludge digestion tanks each 40 feet in diameter and 17 feet deep. They are equipped with a Dorr scraper mechanism, and sludge from the clarifiers is pumped alternately to the two digesters. The production of gas is high for a domestic sewage from a population of only 12,000, amounting to an average of 15,000 cubic feet daily as measured by a Metric Metal Works gas meter.

An underground gallery from the service building basement connects with the digesters. The basement contains the two Marlo sludge pumps driven by U. S. Electrical motors and all the necessary piping for the present installation and stub ends for future installa-

tions of more digesters. There are four sampling valves on each digester leading from different elevations to one outlet in each case for ease of handling the samples. In the gallery the gas lines are painted red, the sewage sludge lines green, water lines gray, and city potable-water lines brown.

The digesters are maintained at a temperature of 84 to 90 degrees F. by water from a small Bryant boiler, and circulated by a Yeomans centrifugal pump. The supernatant liquor from the digesters runs by gravity to the raw-sewage inlet. An Everhot water heater is used to heat the water for house service, and both boilers are run from sewage gas. The piping in the basement is so arranged that the same sludge pumps can handle the sludge from the clarifiers to the digesters and from the digesters to the sludge drying beds.

Sludge Disposal

The digested sludge is pumped to the three Lord & Burnham glass-covered sludge-drying beds located on either side of the sewage-effluent line. Each bed is 40 x 75 feet and has concrete runways for the use of light trucks in hauling the sludge to dumps around the plant. The sandy character of the soil around the plant makes the sludge an ideal stabilizing agent for the creation of lawn areas.

The flow of sewage to the plant is measured by a Republic Flow meter located in the influent line near the clarifiers. This is an indicating and recording meter.

The Service Building

The main building where the control is centralized is a brick and limestone-trim structure containing the laboratory, very completely equipped for the study of the operation of the plant, the chlorine room, and a two-car garage to protect the cars of the operators during the severe winter weather that is experienced here. Digester gas is used for the Bunsen burners, in the laboratory and the Servel gas refrigerator is being switched from the city gas plant over to the use of digester gas. In the laboratory is a constant-temperature box furnished by the Precision Scientific Co. for B.O.D. determinations, as well as the other required electrically operated equipment for this type of work.

In the basement, in addition to the chlorine storage room, there are two Bryant steam boilers for the digester water, which operate through a heat exchanger controlled by an Aquastat and for heating the service building. There are duplicate boilers, either or both of which can be operated on city or digester gas. They are used first on the digester gas with the city gas connection maintained as a standby. Before the digester gas began to develop, the city gas was used entirely.

A well-planned office, complete with files and a radio, is located as an alcove from the laboratory. House sewage as well as the leakage into the basement is removed by a Yeomans sump pump in the basement. This 225-gpm pump operates automatically and can be used to drain the bottoms of the clarifiers when needed. Chapman valves were used throughout this plant.

Bids for the construction of this plant were taken February 25, 1938, and the plant was completed eight months later. The low bid of $144,900 was made by Strandberg & Spencer, Inc., of Chicago, Ill. The plant was designed by Shoecraft, Drury & McNamee of Ann Arbor, Mich., consulting engineers, and is operated under the direction of T. Fred Older, Manager of Public Utilities. In the construction of the plant the contractor chose to excavate the entire area with a dragline, allowing the sand to seek its natural slope. The material was allowed to remain in piles around the site and then used as the backfill instead of reducing the area excavated by sheeting each of the holes for the structures. The bottom of the lowest excavation, for the clarifiers, was just about lake elevation, and some ground water was encountered, but not enough even to require the use of pumps.

Orders in Akron Park Signs Replaced by Friendly Notes

EFFECTIVE park signs need not be threats. Akron, Ohio, has attempted to replace the old "don't" and "by-order-of-the-police-department" signs, with friendly reminders that catch and hold the eye. The reader feels that another citizen is on the other end of the hint, and not the official agency.

Instead of this in large letters—

DON'T PICK THE WILD FLOWERS
AKRON METROPOLITAN PARK DISTRICT

the Park District has posted, in script letters, this informal note:

I should like to come back next year and find this park as it is today. Let's leave the ferns and flowers as they are.

Two other examples are:

There's a rule against dogs—leashed or unleashed—from May 15th to September 15th, so I have to leave mine at home. Guess you'll have to do the same.

When I left, this toilet was as clean as any can be. Since it's yours and mine, will you help keep it so?

H. S. Wagner, Director-Secretary of the Akron Metropolitan Park District in Akron, explains to THE AMERICAN CITY how the idea for these park signs evolved. In one of Akron's neighborhood parks where there are always a great many young folks, the caretaker-patrolman, who happens to be the Boy Scout Commissioner in that section of the city, got a great deal of assistance in the preservation of the natural and man-made features of the area, from boys and girls who deputized themselves to influence other boys and girls in keeping up the park. There was many a "Hey, Johnnie, you can't cut that stick to roast that wiener on," which was more effective than any blunt command from the Park District. Secondly, it was observed that, in general, even the so-called very best people do not like to be told that they have misused some item of public property or transgressed any common right, especially when their advisor is a person of authority.

Mr. Wagner's idea is that park signs are a necessary evil—an evil that should be gradually eliminated. Their messages are not innumerable and it is within reason to expect that wise use of signs, keeping them current, changing their copy and their location, will make them effective to the point that their need will diminish as parks are used more widely.

Redevelopment Plans for Cincinnati's River Front

By Myron D. Downs
Engineer-Secretary, City Planning Commission, Cincinnati, Ohio

As a first step looking towards the redevelopment of Cincinnati's central river front, a report containing the accompanying alternative plans and numerous other suggestions has been submitted to the City Planning Commission by its engineer and staff. The plan has not yet been adopted by the Commission and is being distributed to city officials and civic and professional organizations as a basis for discussion.

Cincinnati was first settled in 1788. The population in 1840 was less than 50,000, but by 1880 had passed the quarter-million mark (255,000).

Shortly after the beginning of the present century, public sentiment in favor of removing the railway passenger terminals from their several locations in the central river front to a single terminal became vocal. Planning and replanning for a new location consumed more than a quarter of a century. When once an agreement was reached upon a site, construction plans and the execution of the necessary physical work consumed less than a decade.

Although the planning of a freight terminal system was carried on, no agreement was reached between the railroads or between the City Council and the railroads. The report now under discussion strongly urges that the Planning Commission seek the cooperation of the City Council in determining a plan for the improvement of the location and arrangement of tracks and yards. Industries are moving away from the section between the Ohio River and the retail district, and new industries are not replacing them, as evidenced by the ever-increasing number of vacant areas used as public or customer and employee parking lots. Some have asserted that this tendency has resulted from flooding. However, the same type of movement has occurred in St. Louis and Cleveland, where the blighted industrial and retail lands have never been flooded by the Mississippi River or Lake Erie. Land values south of Third Street reflect a downward trend of 50 per cent to 65 per cent in less than twenty years.

The report suggests stages of redevelopment which will permit ample time for the study of the railway situation south of Second Street and points out these items for consideration:

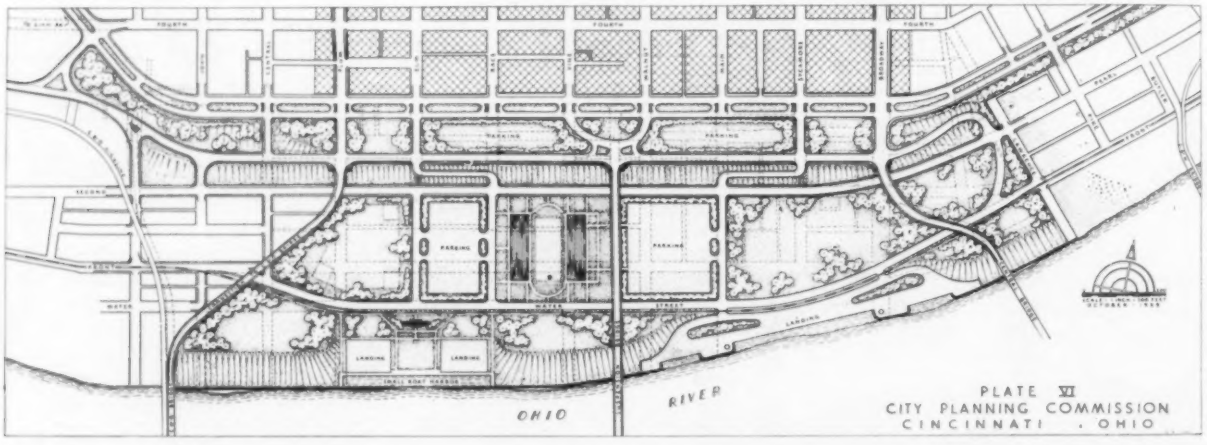
1.—General rehabilitation of the central river front is essential if the depreciation within the area of the old city is to be kept from blighting the present retail business, banking, hotel, and office building section.

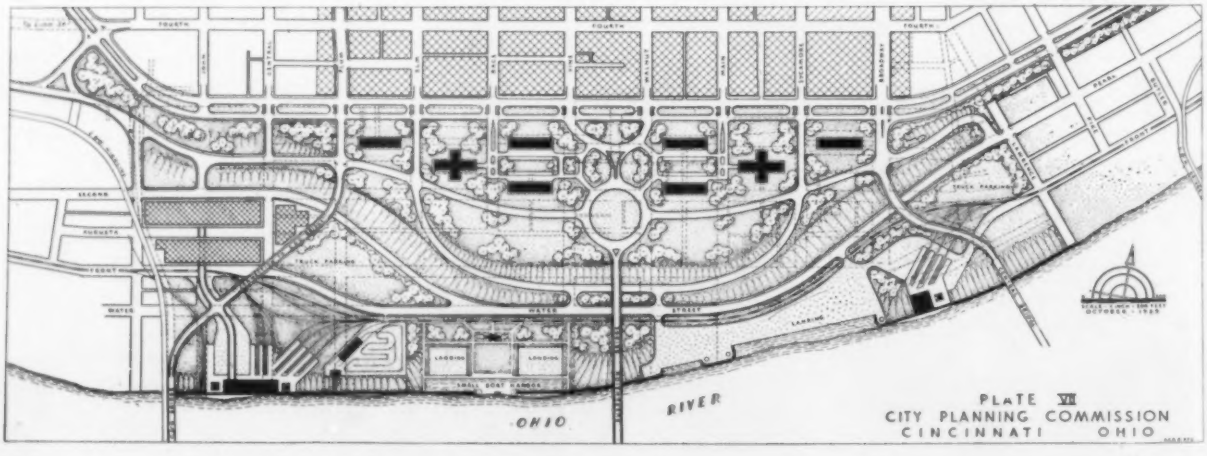
2.—In any rehabilitation program for the site of early Cincinnati, exhaustive study should be given to the improvement of railway, highway and waterway transportation.

3.—The Ohio approaches from the metropolitan areas in Kentucky have remained far too long an obstacle to the free movement of traffic, with the result, a depreciation of values of adjacent frontage.

4.—The present overloading of Third Street should receive prompt relief.

5.—In the interest of preserving direct access to the river for public or private uses, no levee or wall should be placed within the central river-front district, especially immediately along the bank of the Ohio River.





Sewage-Treatment Plant Built on Several Levels

Granite Falls, Minn., Has a Five-Year-Old Plant Operating Automatically from a Sump Below River Level, from Which Sewage Is Raised 55 Feet for Treatment

THE city of Granite Falls, in the southwestern section of the state, is located on the Minnesota River, largely on the high banks of the stream, which made it necessary to collect the sewage at river elevation and pump it 55 feet vertically to the plant, the basins and foundations of which were hewn from solid granite.

Interceptors and Pumping

The banks of the Minnesota River through the town are riprapped, providing a neat and attractive park area. Most of the sewage originates on the west bank of the river, where the various main sewers empty into one manhole, which is connected with the east bank by an inverted siphon of steel pipe. Here it enters a manhole where the east bank sewage also collects, and flows by gravity to the screens and sump, the chambers for which were cut out of the granite ledge that forms the river bank.

The screens are bars spaced 1 inch apart and hand-cleaned twice daily, as required. The sewage is almost entirely domestic, and most of the storm-water connections that had been made are being eliminated rapidly. Two float-controlled American Well Works centrifugal pumps of 175-gpm capacity against the 55-foot head are installed in the dry well connected with the wet well, and are constantly primed by the head of sewage in the wet well. A Yeomans sump pump in the basement removes any leakage from piping or through the walls from the river, the elevation of which is above the bottom of the sump. The discharge line to the plant is a 12-inch cast iron pipe.

Clarifiers and Trickling Filters

The sewage is delivered by the pumps direct to the single Dorr clarifier, which is 18 feet square at the top and warped to an 18-foot circle at the bottom. The sewage enters at the center and is collected at the outer rim by effluent weirs. The sludge collector arms rotate once every four minutes. The scum collecting at the surface is removed by hand dipping, since spraying with a hose does not seem to be effective. The clarifier effluent flows to a dosing tank equipped with a Pacific Flush Tank siphon which applies the clarified sewage to the sprinkling filters as soon as the tank is filled. A cycle is usually completed on each pumping from the sump at the edge of the river below the plant.

The sprinkling filters are very effective in handling the domestic sewage with the waste from one creamery and a produce house where the liquid waste is almost entirely chicken blood. The brick sprinkling filter building is 48 x 86 feet in plant and contains 8½ feet of crushed granite excavated from the site in constructing the basin. The granite was carefully washed and screened to give a uniform 2- to 2½-inch screened material for the filter bed. The PFT spray nozzles are spaced 8 feet on centers, with the outer nozzles blanked to give one-half sprays away from the walls.

The underdrain system consists of half-tile laid on a concrete floor, and there is a series of 6-inch vitrified clay pipe breathers across the short dimension of the bed at the center. A total of 58 nozzles are used on this bed.

Sludge Handling

From the sprinkling filters the effluent flows to the final settling

tank, measuring 16 x 30 feet, with a cross-wall at the center to collect the major portion of the sludge in the first of the two hopper-bottom sections. The well-nitrified secondary settling tank sludge is pumped twice daily direct to the sludge beds. It is interesting to note that the intense cold for long periods in the winter causes the accumulation of from 2 inches to 2 feet of frost on the walls of the clarifier, trickling filter and final settling tank buildings.

The pump building is a model of simplicity, with a single Humphreys sludge pump driven by a Falk motor and so connected through three valves at one side that it can pump from the clarifier, the digester, or the secondary settling tank. Also, the plant is so designed that it is possible to have gravity flow from the clarifier or the digester to the sludge beds by opening the proper valve from the tank and by-passing the pump. Valves on the opposite side of the pump permit discharge of pumped sludge to the sludge bed, the digester, or the clarifier.

The Digester

The digester is well protected from cold by being entirely underground and is 24 feet diameter and 24 feet deep, with a fixed cover and a gas dome for the collection of the digester sludge gas, which is metered by a Metric Metal Works gas meter, showing a daily production of 1,400 cubic feet of gas with the digester maintained at 90 degrees F. summer and winter. The gas is burned in a Bryant digester gas heater to provide the hot water for the digester. This is circulated by a Worthington circulating pump through the coils around the inside of the digester. The water is maintained at 130 degrees F. going out, and returns at 124 degrees in summer, and slightly lower in winter.

The sludge beds immediately below the pump-house consist of two medium-size beds, used for the digested and secondary sludge, and a small bed, used for the drying of the scum from the clarifier. These beds, which measure 40 feet square overall, were also blasted out of solid granite ledge. The underdrains are tile with sand cover, and drain to the inflowing raw-sewage line.

The Effluent

The effluent from the plant at present flows through a ¼-mile vitrified clay line to the river below the city and the dam behind which the water for the water supply of the city is stored. Provision has been made at the plant for a detention tank for the sewage effluent, where chlorine will be applied at some later date. It is now planned to install two new chlorinators at the water works and transfer the present chlorinator to the sewage plant.

The present sewage-treatment plant at Granite Falls was built in 1934 from designs of Buell & Winter Engineering Co., of Sioux City, Iowa, and is operated under the direction of C. A. Barager, City Engineer, with J. B. Brooks as Superintendent of the plant.

Historic Filtration Plant at Lawrence, Mass.

(*Continued from page 41*)

CHARACTER OF WATER—RESULTS IN PARTS PER MILLION

	Raw			Filtered			Aerated		
	Max.	Min.	Aver.	Max.	Min.	Aver.	Max.	Min.	Aver.
Alk.	18	4	7.5	18	2	12	22	1	9
CO_2	12	7	9.6	12	7	9.5	..	..	..
Color	80	32	47	6	2	4	6	2	4
ph	6.8	6.5	6.6	*7.0	6.6	6.7	7.0	6.6	6.7

* Controlled pH.

CHEMICALS APPLIED—POUNDS PER MILLION GALLONS

	Winter	Summer
Alum	155	161
Lime	9 and 47*	5 and 62*
Activated carbon	7.6	0
Chlorine	3.8	6.8

* Pre-treatment and post-treatment. Pre-lime used in December and early spring.

Aeration

From the filters the water is run to 70 Sacramento type aeration nozzles, which are operated at 100 gpm, each under a 4-foot head. This removes some CO_2 and lime is added to adjust the pH and further reduce the CO_2, and then the water can be run through the existing covered slow-sand filters, which have a total area of 2.25 acres, making the rate of 4.4 mgad when the plant is operating at 10 million gallons daily.

The water then runs to the filtered-water suction reservoir, capacity 70,000 gallons, located in the southwest corner of the north covered filter.

Main Pumping Station

The main pumping station is equipped for low service with two 6-mgd Fairbanks-Morse centrifugal pumps operating against a head of 195 feet, and one 6-mgd Lawrence Machine & Pump Co. operating against the same head. On the high-service side are one existing Lawrence Machine & Pump Co. unit of 2.6-mgd capacity and 136-foot head and a new pump of the same make, of 2-mgd capacity and 170-foot head. The low-service reservoir capacity is 42,492,488 gallons. The high-service standpipe has a capacity of 529,000 gallons.

Personnel

Patrick S. Nugent is Superintendent of the Lawrence Water Works, Daniel F. Ferris is Director of Engineering, and J. C. Derby is Water Chemist in charge of the operation of the filtration plant. Metcalf & Eddy, Boston, Mass., were consulting engineers for the design and construction of the new plant.

Midland, Texas, Builds an Airport

By A. M. East
City Engineer

ABOUT eleven years ago an independent oil operator, Sam Sloan, recognized the need of an airport near Midland, the oil capitol of the Permian Basin, and secured 212 acres of ground 7 miles west of the city, erected a "wind sock" and called the location Sloan Field. In April, 1930, the U. S. Army, needing an Army refueling stop in this vast ranch country, stationed a small detachment of men in the buildings built by Sloan.

At the death of Sam Sloan the airport was inherited by Harvey Sloan, who continued to improve Sloan Field until May, 1939, when the demand by military and commercial aircraft became so great that he found he would have to give up either the oil business or the airport.

The farsighted Chamber of Commerce and city officials immediately negotiated with Sloan, reached an agreement, and ordered a bond election of $125,000 for the purchase of Sloan Field, additional necessary land, paving runways, building a radio and meteorological tower on top of the administration building, additional quarters for Army personnel, hangar and additional lighting facilities.

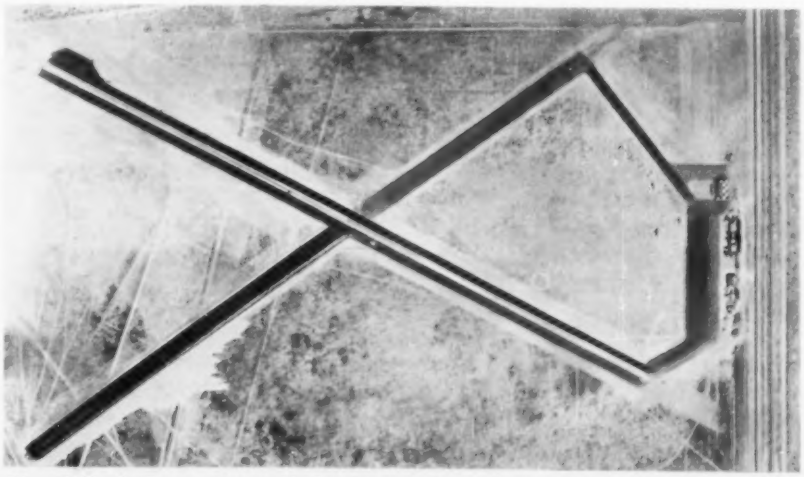
Preliminary surveys and plans were started by the City Engineering Department as soon as the bond election was called. Plans and specifications were ready when the bond money was available from the sale of the bonds, which were carried by the civic-minded citizenry of this city of 10,000 by a vote of 7 to 1. The airport was purchased from Sloan July 1 and renamed Midland Municipal Airport.

Start of the Work

The surveys showed an additional 90 acres of land was necessary to build paved runways to the desired length of 4,500 feet. This land was purchased, ten new boundary lights were installed, and the new land fenced. Before this could be done, however, it was necessary to install metal casing on two 10-inch oil lines which crossed the property, move and rebuild two miles of telephone line, and clear and grub the new ground.

Along with the preliminary surveys, 235 soil samples were taken and analyzed by the McKesson method. It was found by these analyses that by shifting and blending the soils on the runway locations, the existing soil could be stabilized with an addition of 4½ per cent asphalt emulsion by weight. It was found that soil with from 20 to 30 per cent passing a 200-mesh sieve would properly stabilize with this amount of asphalt. This material, when stabilized, has been used successfully by the city for bases for street paving.

The plans and specifications called for 164,336 square yards of 4-inch compacted stabilized soil



The Midland, Texas, Airport Under Construction. Photograph taken from 5,500 Feet Elevation by the U. S. Army Air Corps

base with a 1-inch asphaltic concrete wearing surface. This paving included two runways, one 4,100 feet long and 120 feet wide, and the other 4,500 feet long and 150 feet wide. The remainder is a warm-up apron 200 x 800 feet, and taxi strips.

The contract for paving was awarded to the low bidder, San-Ore Construction Co., of McPherson, Kans., August 16. The Engineer's estimate for this paving was $85,000 and the low bid was $71,427.17, while the highest bid was $88,298.23. The first ground was broken on the paving contract August 30, and the final acceptance of paving was on November 28.

Progress of Paving

Because of the natural sloping terrain, grading for the runways was mostly road-grader work. Minimum and maximum grades ranged from 0.10 to 0.80 per cent. One runway, 150 feet wide, has a 7-inch parabolic crown, and the other a 6-inch slope across from north to south. All drainage on the field is over the surface only, and some of the largest transport planes have been able to take off thirty minutes after a 3-inch rain fell in a period of two hours.

After the grading was finished, the subgrade was prepared by watering and rolling, the soil for base material was dumped in windrows with an end area of approximately 4 square feet, or 400 cubic feet to the station. These windrows were evened up by pulling a home-made windrow evener over them several times with a motor grader. After the windrowed material presented a uniform appearance, each windrow was measured for exact end area at every station, and the amount of asphalt emulsion was determined.

A self-propelled or tractor-drawn type traveling mixer had been specified to assure all possible speed. The contractor used a Woods Road Mixer consisting of a 90-hp crawler-type tractor with a power take-off, the mixer proper, and a two-compartment 20,000-gallon trailer tank for water and emulsion. Behind the trailer tank are two tow-chains to pull delivery tank trucks while unloading water and stabilizer into the trailer tanks. Dual pumps are mounted on the rear of the trailer tank to pump from the tank trucks into the tank. Dual pumps are also mounted on the rear of the traveling mixer to pump from the trailer tank into the mixer. By this method an uninterrupted mixing operation was carried on without waiting for the delivery of materials.

The mixer is equipped with blades on the front and at each side of the windrowed soil or aggregate, these being spiral revolving blades and mixing blades which pick up the windrowed material and mix it with water and the emulsion. The mixing blades are driven by a shaft from the power take-off on the rear of the tractor, and the traveling speed of the tractor is also governed by this same attachment. Water and emulsified asphalt are introduced into the mixer under pressure by pumps through a calibrated orifice which governs the volume.

Before construction started, a complete soil-analysis laboratory was located on the field. Samples of the materials were tested. Mixes were determined by these analyses and carried out in construction. Samples of materials were taken after mixing to see that desired results were obtained. Not one sample was found that did not meet the specifications.

The moisture content of the soil used in the base mixture was from 1 to 3 per cent by weight. The amount of water required to bring the moisture of the base to the optimum content varied from 40 to 60 gallons to the cubic yard.

The mixed base material was spread from 24 to 48 hours after mixing by motor graders. Immediately after spreading, it was rolled with a sheepsfoot roller until compacted within one inch of the finished surface. The sheepsfoot was followed by a pneumatic-tired roller for the final rolling. After a few days a tack coat of emulsified asphalt stabilizer and water was applied with a tank truck equipped with spray bars. For the tack coat a dilution of 800 gallons of water to 200 gallons of emulsion was used. This was rolled once with the pneumatic-tired roller.

Core samples were taken periodically from the base material, and when the base material was found to be below 5 per cent moisture content, topping operations were started. The topping was mixed by the same method as the base, rolled with pneumatic-tired roller and finished with a flat wheel roller.

The Wearing Course

The asphaltic concrete wearing course consisted of pea gravel, crushed stone and local blow sand mixed with asphalt emulsion. Pea gravel and stone was shipped from a point 100 miles away.

The following grading of aggregate was used:

Per Cent	passing	½"	screen		100
" "	"	¼"	"		90 — 100
" "	"	#10	"		45 — 60
" "	"	#40	"		15 — 35
" "	"	#80	"		10 — 20
" "	"	#200	"		5 — 8

Enough water was used to thoroughly moisten the aggregate, and then the emulsified asphalt was applied at the rate of 10 to 12 per cent by weight, depending on slight variations of screen analyses in the aggregates.

Lighting the Field

Boundary lights were spaced at

Front, Entire Unit and Rear of Machine That Mixed Asphalt Emulsion and Soil for Runways

290-foot intervals along the original boundaries, and this same spacing was carried out around the additional property.

Green range marker lights were placed at each end of the paved runways, 100 feet outside the paved areas. Three of these lights were placed at each end of the north-south and two at each end of the southeast-northwest runways. These range marker lights are cone knockover type of Westinghouse design.

Along each side of the runways at 200-foot intervals were placed Westinghouse flush-type contact lights. These lights are in series, and each runway is lighted independently of the other. The lights are controlled by a switch in the radio tower and are lighted only when an airplane is coming in to land or is taking off. The runway to be used to meet the prevailing wind is the only one lighted. A lighted wind indicator gives the pilot all other information needed.

Floodlights are conveniently located on the buildings to give proper lighting on the warm-up apron and gasoline service pits. A marine-type searchlight, mounted on top of the radio tower, is used to "sweep" the entire field before the contact lights are turned on. A Civil Aeronautics Authority revolving beacon is also located on the field.

Complete hourly weather information as well as radio services are available to both military and commercial aircraft, with radio operators and weather men on duty 24 hours daily. This personnel is furnished by the Army.

Gasoline Service

Three grades of aviation gasoline, 74, 80, and 100 octane ratio, are stored underground in tanks and serviced through five pits located along the center of the warm-up apron. Four of these pits are equipped with double hose outlets and meters, giving nine outlets for gasoline at one time. By closing one valve and opening another, any grade of gasoline can be served from any pit.

With the storage tanks full and one car on an adjacent siding feeding by gravity to the storage tank, the total gasoline storage capacity is approximately 60,000 gallons.

The dedication of the Midland, Texas, Municipal Airport, November 18, 1939. The warm-up apron and taxi strip out to the end of one of the runways are seen in the background

Hangars

One hangar 60 x 120 feet with 14-foot clearance serves the present needs of commercial aircraft. Plans are under way for another hangar 110 x 120 feet with a 20-foot clearance overhead, to be built in the near future. This hangar will be placed adjacent to the present one with a 30-foot space between for truck storage and a shop.

Regular meals and short orders are available in the administration building, which also has sleeping quarters for twelve persons. This hotel service is for visiting pilots and crews who come in late and wish to leave early, and do not care to go into town. Free transportation service is furnished into town by car for those who wish it.

Four Years of Council-Manager Government in Saginaw, Mich.

RELIEF from high taxes plus "distinctive" gains in municipal services has been the result of four years of council-manager government in Saginaw, a city of 80,000 population in Michigan, Dr. Howard M. Kline of the University of Maryland reported last month to the National Municipal League. He lists the following as some of the accomplishments of the new government:

1. It is generally known throughout Saginaw that the municipal merit system is "on the level" and politics are "out."
2. The city has had a surplus at the end of each of its last three fiscal years.
3. The new city government has paid off sums averaging more than $500,000 annually on outstanding debt, without borrowing a single penny.
4. The city tax rate for 1939-1940 is the lowest in this century in Saginaw and barely half that of ten years ago. Tax rates have been reduced, while assessed valuation has remained relatively unchanged.
5. The percentage of the current tax levy collected has continually increased.
6. In 3½ years the new administration has undertaken more public improvements than Saginaw had seen in the preceding twenty. Every dollar was paid in cash from the city treasury and no debts were incurred.
7. Three hundred street lights, out since 1933 as an economy measure, have been relighted; yet the total cost of present street lighting is lower than before the reduction.
8. Gasoline costs to the city were cut from the 1935 figure of 14 cents per gallon paid by the Commissioners to 7.2 cents.
9. In 1938 Saginaw won first place in the National Safety Council contest as the city in its population group which made the greatest reduction in its record of traffic injuries and fatalities.
10. The city's crime rate shows a slight decrease.
11. A new division of purchases saved the city nearly 15 per cent of the total cost of its purchases during its first full year of operation.
12. The revenues from traffic violations increased 82 per cent in the first year of the operation of a Traffic Violations Bureau, and the city has begun to collect large sums which formerly went unpaid.
13. The commission government left a heritage of delinquent and uncollected accounts. The new manager government has collected the sums due.
14. City administration on the basis of approximations and guesswork has been abandoned. The Council and Manager have been willing to call in advisors from outside the city.
15. The Saginaw Finance Department is being recognized as one of the finest and most modern in the country for a city of its size.

Dr. Kline's report appears in the January *National Municipal Review*.

Treating Lake Michigan Water at Muskegon Filtration Plant

Alum, Activated Carbon, and Double Chlorination with Filtration, Results in Excellent Water

THE lakeside city of Muskegon, Mich., has provided adequate treatment and capacity to insure its water supply for many years to come. The filtration plant, built in 1936, has a peak capacity of 18 million gallons daily, while the normal demands of the city are only 4.5 mgd for the 47,000 population, increasing to a summer maximum demand of 14.0 mgd.

The Intake and Pumping Station

The 48-inch cast iron intake runs 7,000 feet in a southwesterly direction from the pumping station, ending at a depth of about 70 feet. Water flows by gravity through the line into a pump screen well at the station from which the low-lift pumps deliver it to the treatment plant.

The low-lift pumps are all Dayton - Dowd centrifugals driven by Elliott electric motors, as follows: 8-mgd with 100-hp motor; 6-mgd with 60-hp motor; and 4-mgd with 50-hp motor. There is a standby unit consisting of a 4,200-gpm Dayton-Dowd pump driven by a 6-cylinder Continental gasoline engine.

The high-lift pumps located in the same pumping station to the south of the filtration plant consist of Worthington centrifugals with Westinghouse motors, as follows: 6¼-mgd with 250-hp motor; 5-mgd with 200-hp motor; 3½-mgd with 150-hp motor. The high-lift standby pump is a 7-mgd Worthington driven by a 200-hp Sterling gasoline engine.

For servicing the pumps and motors, there is a 5-ton Shaw Box wall crane running the entire length of the pump station.

An interesting feature of the intake that has much to do with the treatment of the water is that it is located between the Grand River thirteen miles to the south, at Grand Haven, and the Muskegon River two miles to the north, at Muskegon. A steady wind from either of these general directions will cause the river waters to show up in the intake, the Grand River a yellow and the Muskegon River black. When this occurs, which fortunately is rare, the activated carbon dose is increased because of the tastes from wastes in the two rivers.

A Builders Iron Foundry venturi meter measures the entire delivery of water to the distribution system by the high-lift pumps.

Chemical Treatment

The raw-water line from the low-lift pumps header is a 36-inch cast iron pipe laid inside the settling basins to the east of the plant and thence into the plant at the headhouse. The chemicals used for treatment, alum and activated carbon, are forced into the raw-water line by water injectors as the line enters the building.

The chemical room contains three Infilco dry feed machines with the hoppers suspended on Kron scales. The hoppers are filled to given weights about twice a week, and the feed is watched and checked by the scale readings. Two of the machines are used for alum, and the third for the Nuchar activated carbon. The chemical storage room on the second floor will store two carloads of alum at a time. It is equipped with a 2-ton electric hoist carried on hangers from the ceiling with suitable switches to permit storage at different points. The electric tramway is an Osborn unit with a Shaw Box hoist. The track runs out over the entrance drive at the back of the plant, so that the trucks can be spotted directly under the hoist.

Chlorine is added to the raw and filtered water by two Wallace & Tiernan solution feed vacuum type chlorinators. One-ton containers of chlorine are used, supplied by the Pennsylvania Salt Co. with 150-pound cylinders for use when one of the large containers is being shifted, since there is not room on the large Howe platform scales for two of the 1-ton containers at the same time. The 1-ton tanks last about one month, and as the Muskegon sewage works uses much more chlorine and has more adequate storage, the new tanks are sent from there and mounted directly on the scales.

The chlorine for the raw water is applied as the water enters the plant, and just ahead of the other chemicals. There are connections through a manifold at the chlorinators so that the solution can be applied either to the raw water, to the settled water in the riser to the filters, or to the finished water in the clear well. The carbon connections are in duplicate, permitting the application to the raw water or to the settled water. The present application of the carbon is 1 ppm to the raw water. The chlorine is applied at 6 pounds per million gallons, leaving a zero residual in the filtered water, and the post-chlorination as the water enters the clear well is 2½ to 3 pounds per million gallons, which gives a residual of 0.2 ppm at the high-lift pumps. The alum dose is from ¾ to 1½ grains per gallon, the larger figure being the amount applied in winter.

Rapid Mix and Settling

As soon as the water receives the applications of chemicals, it enters the Infilco Rapid Mix, consisting of two units 12 feet square and 20 feet deep with single rotating impellers driven through speed-reduc-

ing gears by 4-speed motors. The impellers are located within a circular casing, which gives an updraft and turnover of the water. The two units are run in parallel. The water is taken from the front of the rapid mix units and flows directly to the settling basins. The retention period in the rapid mix is 4 minutes at the 11-mgd rate of operation, while the retention period in the settling basins is 3.5 hours at 16 mgd.

The settling basins to the east of the building are equipped with Dorr flocculators with the motors above ground and housed to protect them from the blow sand. The basins are divided into two parallel sections, with the water entering the north ends and flowing through wood stilling baffles with vertical slots. There are two flocculators in each basin, with baffles between, running about three-quarters of the distance from the surface to the bottom. At the south end the water flows out over a decanting weir and thence to the settled water riser in the filter house, which is open at the end of the filter gallery.

Filter Operation

The settled water flows from the riser through a central flume laid in the floor of the filter gallery and thence to the three filters of two sections each on each side. Operating at a rate of 125 mgd, the filters deliver 2.67 mgd. Each section is equipped with five wash-water troughs. The under-drain system consists of a concrete header with 3-inch pipe laterals with ¼-inch holes in the bottom. They are covered with 21 inches of gravel graded from coarse to fine, supporting 27 inches of Muscatine sand. There is 24 inches of freeboard between the top of the sand and the tops of the wash-water troughs.

The filters run about 30 hours in summer, with the runs dropping to as low as 5 hours in winter. The initial loss of head is 1 foot, and the maximum permitted is about 10 feet before washing. The rate of flow is controlled by Simplex rate-of-flow controllers, in which the rates can be changed by simple valves on the control tables which alter the hydraulic load on the

Filter Gallery from Master Meter Stand

beam of the controller. The valve controls are all Infilco on the operating tables. Simplex loss-of-head and rate-of-flow gages, both indicating and recording, are installed on the tables. The filters are washed at a 24-mgd rate.

Two Dayton-Dowd centrifugal pumps operating at 8,400-gpm each under a 50-foot head and driven by 125-hp Elliott motors supply the wash-water, taking suction direct from the clear well.

Pipe Gallery and Clear Well

The pipe gallery is wide and open, permitting easy access to most of the valves and controls for adjustment and repair. A light well at the entrance to the clear well shows effectively the clarity of the water, since the light is under 14 feet of water. Throughout the building heat is supplied by Young unit heaters and steam radiators from a steam boiler in the basement.

The Building and Services

The plant was built in 1936 and is laid out for an additional set of filters to the north of the headhouse when required. The building itself is of brick and limestone. At the front on an intermediate floor is a storage room with a workshop and the plant switchboards.

An automatic gas-fired Johnston Bros. boiler supplies heat for the building through the unit heaters and steam radiators, and all condensate lines from the heaters as well as the hydraulic lines for the valve controls are of Streamline copper pipe and fittings.

In the main corridor on the filter gallery floor are the master meters, consisting of a Republic Flow Meter on the raw-water line to the plant, a depth gage on the clear well, the wash-water meter, and a pressure gage showing the pressure in the city.

The laboratory on the same floor is fully equipped for the standard chemical and bacteriological tests for plant operation. It has two 37½-degree incubators, an electric refrigerator, a steam autoclave, and electric dry ovens.

The plant is operated under the direction of R. L. Sensabaugh, Superintendent of Water Supply, with R. G. Matthews as Plant Chemist, and Ronald Stromsta, Ford Bender, George Young and Richard Tannehill, operators.

Downtown Buffalo in 1949

CROWDS of unhurried shoppers in the business district gaze into the windows of new stores. Traffic which does not stop in the downtown section is sent by arterial by-ways around rather than through that section. From the new Perry Boulevard, drivers glimpse the playground and flowers of renovated Centennial Park. At the foot of Main Street a tunnel or high-level bridge carries them quickly across to Fuhrmann Boulevard along the lake shore.

This picture of Buffalo—a city rebuilt according to the master plan of a City Planning Board with adequate powers, and a projected Buffalo Port Authority—was sketched at the third annual civic meeting of the Buffalo City Planning Association, Inc.

George W. Wanamaker, President of the Common Council in Buffalo, predicted two major changes in the planning machinery of Buffalo, within the next two or three years: first, that the City Planning Board would be given a degree of power heretofore undreamed of; and, second, that there would be created a Port Authority of the city of Buffalo to coordinate the plans of the city with those of the industrial residents of the entire community. Urging the right kind of advertising to encourage people to live in Buffalo instead of in the suburbs, Mr. Wanamaker stressed the importance of better housing, neighborhood rehabilitation and other public improvements.

"To control or avoid decadence," said Fenton M. Parke, President of the Buffalo City Planning Association, "we must plan far ahead, since both growth and decay are natural results of economic conditions."

Pertinent Paragraphs on Housing

From the February, 1940, Issue of Survey Graphic *on "Homes: Front Line of Defense for American Life"**

Building Our "Home Line"

If we mean to gain and to retain healthful living in pleasant communities for ourselves, our children, our fellow citizens, then we must reckon with the new hot dog stand suddenly erected and noisily operating in our midst, with the old swimmin' hole being polluted by the new factories built upstream, with the dust storms making our lives physically impossible. Whether we live in big cities or in small towns or in the country, we are affected by the forces of disintegration. We effect a real cure only by going deep into questions of housing and planning, of a disorganized construction industry, of land ownership and its exploitation, and of public control of our land. . . .

Broadly, the question is whether our civilization is capable of further bold voluntary progress. In a short time incredibly much has been accomplished. But we have made only a beginning on a very long road.

ALBERT MAYER.

Housing and Politics

If enough demonstrations can be completed, if enough public interest is stirred to warrant their continuance, housing, rural resettlement and similar measures may reach out of their present place as temporary expedients into something whole, rational, real and permanent. . . . If confusion or the clamor for economy is allowed to erase the progress so far achieved, it may be years before another similar opportunity presents itself. And in the meantime the situation will continue to deteriorate, for the forces that have brought us to our present position are still the dominant springs of action.

CHARLES ABRAMS.

The War at Our Feet

The overwhelming impulse at the moment, I think, is to put our own house in order, to make this land a suitable habitation for freedom, and to stay out of Old World quarrels. What we need first of all is a set of ideas that will command our allegiance over partisan, class and regional consideration, a campaign of peaceful conquest within our own borders. In a genuine and coordinated long-time campaign of conservation, one that touches on every phase of life from the enrichment of soil to the enrichment of human opportunities and talents, I feel that we have such a cause.

A start has been made, a good start. We see now that the loss of our basic heritage can be stopped. Our agriculture, our civilization, can be made permanent. We begin to understand how. Here in our chosen land, with its rich expanse of gleaming shores, great rivers, mountains, prairies, plains, we have a country worth defending. *What other peoples fight for, we have.* There is no better country anywhere. Let us defend it. Let us comprehend, before it is too late, the primary relationships between our country and its people. Let us read our histories—of ancient civilizations that perished as their dying cities found themselves situated in deserts as barren as the moon.

Let us face, first of all, the war at our feet!

HENRY A. WALLACE.

That "Third of a Nation"

The general objective, of course, is an America in which every family is properly housed. But that will take many years—twenty-five or thirty at least. So it becomes of considerable importance who has priority. We know quite well that in housing by private enterprise the family with the highest income is served first. We know that public housing is different. Does it therefore follow that the family with *lowest* income or with no income should be served first? Should indigence give priority? A great many people seem to think so, including some social workers who are good friends of housing. But that answer is much too simple.

Such a policy would turn public housing projects into asylums for problem cases, while low-paid workers who support their families would still be raising their children in the slums.

If public housing were an emergency relief measure, it might be logical to succor the most unfortunate first. Since it is a long-range public health measure, the course should be followed which will pay largest dividends in terms of public health. That means *children first.*

The Wagner-Steagall Act says that public housing for which it provides annual grants must either be built on cleared slum sites, or equivalent elimination of unfit housing must take place elsewhere. Tenants must be families unable to secure "decent, safe and sanitary housing." They must also be "in the lowest income group." Hearings in the House of Representatives showed that members of Congress responsible for that phase intended it to mean the ill-housed third.

Within these limits it would seem to be the part of prudence to perfect the technique of providing wholesome housing for steadily employed workers, with minimum use of subsidy, proceeding from there downward to include other more difficult groups.

EDITH ELMER WOOD.

Investment Housing Pays

Limited dividend corporations which have been so successful in the large-scale rental field have had financial difficulties with selling. Their experience shows that successful investment housing must consist not only of large-scale communities under single management but also under single ownership. Where these policies are followed, as Charles F. Lewis, the able Director of the Buhl Foundation, has said, they are not "limited dividend," but "*assured* dividend corporations." . . .

The investment companies should plan, construct and operate projects as complete neighborhood communities. So that these communities shall not consist of a single restricted income group, the housing developments of the government and investment companies should be coordinated and related in the rebuilding of cities. The government must continue to subsidize the lower income groups that cannot be served on a business basis. It will start at the bottom. The investment companies will start at the top and work down. They will house those groups that can be served on a business basis, [but] there will remain those who, although they do not require large subsidies, cannot pay enough to tempt business investment. Their homes can be financed by the use of money at the very low rates at which the government alone can afford to lend and, if need be, on the basis of the gradual amortization of loans, but without interest.

CLARENCE S. STEIN.

(*Continued on page* 63)

* For a brief review of this notable issue, see page 113.

Methods That Have Reduced Tax-Delinquency

By Frederick L. Bird
Director of Municipal Research,
Dun & Bradstreet, Inc.

THE general property tax, being the mainstay of the revenue systems of most local governments, needs to be a reliable tax. If budgets are to be balanced with any degree of facility and municipalities are to have a steady flow of funds to meet their financial obligations, each property tax levy needs to be promptly collectible and highly collectible. Ideal dependability calls, first, for the largest possible collection of each tax levy within the fiscal year it is designed to finance; second, for a rapid and orderly realization of tax arrears; and, third, for close to 100 per cent ultimate collection.

That a rather disconcerting amount of unreliability in the property tax developed in the past ten years, however, is a matter of common knowledge; and the fact that collections this year are back to normal, on the average, should not be permitted to obscure the actual or potential unreliability that still exists. . . .

Of 150 cities of over 50,000 population, at least 23 closed 1938 with less than 5.5 per cent of their current tax levies uncollected, as compared with a median ratio for the 150 of twice that amount. Economic and other factors entered the picture, to be sure, but there is some significance in the fact that most of the group follow efficient, rigid methods of tax collection. Ten of the 23, in fact, were California cities, none of which had abnormal tax delinquency in the depression, despite the deflation of a hectic real estate boom in the southern part of the state. The explanation seems to rest partially in sound tax-paying traditions, built up over a period of years under businesslike collection systems, and impervious both to business recessions and to the action of the state legislature in waiving penalties.

A Symposium on Property Taxes

The accompanying article comprises part of a paper presented by Dr. Bird at the eighth annual meeting of the Tax Policy League, in Philadelphia, December 27-29, 1939. It was one of eighteen discussions of various problems of Property Taxation, falling under five main classifications:

Trends in Property Taxation
Classified Property Taxes
Justification of the Property Tax
Alternative Bases for Real Estate Taxation
Administrative Problems of Property Taxation

The symposium will soon be published in book form by the Tax Policy League, 907 Broadway, New York.

These same 150 cities sustained an average current tax delinquency of 10.7 per cent in 1938—a return almost to the fairly normal 10.3 per cent of 1930. But 63 of the 150 bettered their 1930 records. Various factors enter into the explanation of this constructive development, but changes in tax collection procedure or more vigorous collection methods were either a contributing or a dominating influence in a majority of the group.

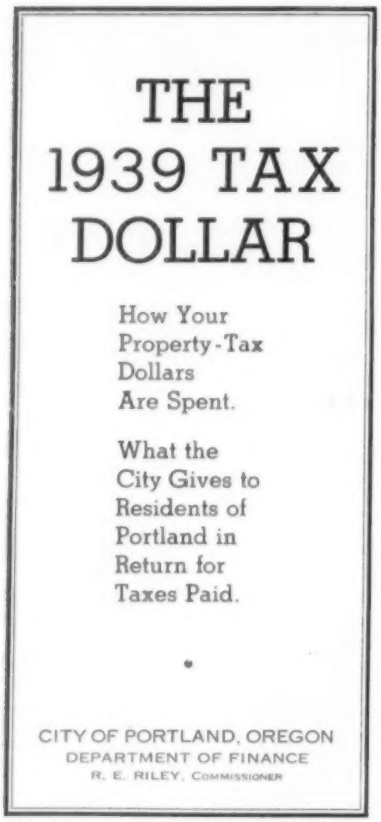
What Happened in New Jersey

Take, for illustration, the situation in the 13 New Jersey cities which comprise a fifth of the group showing improvement over 1930. These cities had traditionally borrowed against taxes instead of pressing for their prompt collection. Their average year-end delinquency in 1930 was 29.6 per cent; by 1933 it was 43.3 per cent; and by the following year drastic action was necessary to avert financial collapse. In conjunction with other steps toward rehabilitation, quarterly tax payments were instituted beginning early in the fiscal year; penalties were increased and enforced; tax sales were held, the first in most instances in years; various other improved collection methods were adopted; and last year the average year-end delinquency was 22.5 per cent — seven whole percentage points better than in 1930.

Characteristic of what happened in New Jersey was an episode in the city of Trenton. This city sought the consent of the State Funding Commission for the sale of a large deficit funding and refunding bond issue. Consent was withheld, however, until the city should hold a tax sale, which it had not done in years. When the tax sale was proposed, so great was the rush of property owners to pay their arrears that it held up the preparation of the list of delinquent property and delayed both the tax sale and the bond offering for several weeks.

Realistic Estimating of Revenues

Reference to tax collection reform in New Jersey prompts comment on another means of improving tax collections only indirectly related to collection methods. It involves an effective procedure for balancing budgets through realistic rather than imaginative estimating of revenues. When budget makers are required to estimate the income from taxes on the basis of actual experience, to provide for the deficit of one year in the budget of the following year, or to set up reserves for slowly collectible taxes, the strongest leverage is provided for vigorous tax collection efforts. The alternative to good tax collections



TITLE PAGE OF PORTLAND, ORE., LEAFLET

For methods of showing what the taxpayer gets for his money, see, in 1939 *issues of* THE AMERICAN CITY: *January, p. 89; February, p. 81; December, p. 36*

then becomes an increased tax levy, an exigency which even the professional politician likes to avoid. In New Jersey and in other jurisdictions where such methods of budgeting have been adopted, observers have noted more strenuous efforts to collect taxes.

One of the astounding revelations of depression experience was the degree to which even the most rudimentary of efficient tax-collection methods had been ignored. It was not uncommon, even in sizable cities, to find no tax bills sent to property owners; to find taxes carried on the books and in the balance sheets dating back almost to the Civil War; to discover not only no effort to collect back taxes but no compiled record of property owners' delinquent tax obligations; and to find that such search was made and the bill settled only when property changed hands. One illustration will suffice. Lincoln, Nebr., for the past fifty years has used a manual system of tax accounting, preparing a tax book annually. Taxpayers had to call at the city hall to learn the amount of their current tax bills, and wait while records were searched for arrears. With the 1939-40 levy, which went into collection October 1, a new mechanical accounting-billing system is being used. Taxpayers were billed in advance, and October, 1939, collections were the largest for that month in the history of the city.

Overcoming Legal Handicaps

How special efforts by officials can counteract legal handicaps may be illustrated by recent developments in Fort Worth, Texas. The state law under which property taxes are enforced in Texas is cumbersome, calling for reduction of the lien to judgment, through personal suit, and then the sale of the judgment. The city of Fort Worth had total current and delinquent tax collections amounting to 92.9 per cent of the levy in 1936-37. In 1938 a special delinquent tax division was set up and total collections in 1938-39 rose to 99.1 per cent of the levy. Similar devices are utilized in certain other Texas cities, with results which indicate their efficacy.

Lest this illustration from Texas be interpreted as an intention to underestimate the value of effective tax laws, let me cite the brief and checkered career of one ill-fated local law. Prior to 1932 the city of New Rochelle, N. Y., held no tax sales, as it had no law authorizing such a procedure. In that year, however, the City Council passed a tax lien law, and tax sales were held under it until its constitutionality was contested and it was ruled out by the court in 1938. The significance of this ephemeral bit of legislation rests in what it accomplished for tax collections while it lasted. In 1933, the worst year of the depression for tax collections generally, New Rochelle's total collections rose to 99 per cent of the year's levy; they remained at this level during the years of tax sales; and then dropped to 94 per cent in 1938 when the law was annulled.

One opportunity for good business management afforded by the tax collection process appears to have been largely overlooked. That is the opportunity for taxpayer education, for overcoming the often irrational resentment at the tax bill. Your monthly bill from the department store is sweetened by accompanying illustrations of the attractive bargains being placed at your disposal. Along with your gas bill and electric bill come insinuating little folders about how many pies you can bake or radio-hours you can operate for a nickel or for the price of a package of cigarettes. But the tax bill usually arrives in all its formidable austerity, without a suggestion of what, if anything, you are getting for your money.

PROGRESS—1940

We Propose To:

1. Construct the 14th Street underpass, eliminating twelve hazardous railroad crossings, at a contract cost of $1,206,591.
2. Purchase $16,000 worth of land along which to construct a flood bridge connecting the low land area of the City with the Highlands.
3. Employ 18 additional nurses—12 for the City Hospital and 6 for the Public Health Nursing staff.
4. Adopt a new license ordinance increasing Sinking Fund revenue and correcting old inequalities in distribution of the license burden.
5. Adopt a new police pension ordinance to replace old plan—actuarially unsound and inadequate in its provisions for compensation.
6. Begin installation of two-way radio systems in police cars.
7. Negotiate or sue for another substantial reduction in electric rates.
8. Secure a modern mass transportation system for the people of Louisville.
9. Build a new gymnasium at Ormsby Village.
10. Make further purchases, amounting to $20,000, of Point property for park purposes.
11. Promote home rule measures and seek a fair share of certain State collected taxes for the city.
12. Further reduce operating costs at the Louisville Water Company and increase its dividend payment to the Sinking Fund.
13. Increase the hourly wage of City labor—affecting 700 employees.
14. Replace ¾ of the City's automotive police equipment.
15. Replace ¼ of the City's street name signs.
16. Expand and intensify our program for complete control of venereal disease throughout the City.

In "The Taxpayer's Dollar," a leaflet issued annually by the Department of Research and Service of the city of Louisville, Ky., citizens are given data as to municipal expenditures, revenues, assessed valuations and tax rates of the year just ended. They are also told, as shown by the page reproduced above, about improvements proposed for the coming year.

Ingenious Salesmanship Helps

Here, too, however, a bit of ingenious salesmanship is beginning to inject itself. It is no longer uncommon for the reverse side of the tax bill to carry a budget summary for the taxpayer to puzzle over. And in a few cities officials are seiz-

ing the opportunity to send along with the tax bills attractively prepared leaflets explaining in simple language and figures the changes in the current budget, or listing and showing the cost to the average taxpayer of the various municipal services rendered. No statistics can be cited to demonstrate the effect of such procedure on tax delinquency, but there is evidence that it helps to engender understanding and goodwill.

Good tax collection methods certainly are no cure-all for the weaknesses and inequities of municipal revenue systems, but a combination of sound procedure and efficient administration goes far in lessening the hazards and uncertainties of municipal finance. Among the perquisites that are forthcoming are a more prompt and steady realization of income from tax revenues; a reduction in ultimate losses; less necessity for guesswork in the making of budgets; a more realistic understanding of a community's economic characteristics, resources and trends; and an opportunity, not necessarily to make taxpayers like to pay taxes, but to dislike less to pay them.

Scope of the Housing Census

FOR THE first time in America's 300 years of growth, an exhaustive survey of its housing facilities is to be undertaken, during April, 1940, as part of the 16th Decennial Census. A force of 120,000 enumerators employed by the U. S. Bureau of the Census will collect information on all the 35,000,000 occupied and vacant dwelling units in the country. A special schedule, containing 31 questions, has been prepared, and as soon as funds for the taking of the Housing Census have been supplied by Congress, the work will go ahead. Authority for the Housing Census to be conducted in connection with the decennial population census was voted by Congress at its last session, but action on an appropriation was deferred until its 1940 session.

The schedule will probably be divided into four main groups of questions, as follows:

1. *Characteristics of structure in which dwelling unit is located:*

Type of structure: one-family detached, one-family attached, two-family side-by-side, other two-family, three-or-more family structures, and structures with business by number of dwelling units.

Structure originally built as: residential structure with same number of dwelling units, with different number of dwelling units; non-residential structure.

Exterior material: wood, brick, stucco, other.
Is this structure in need of major repairs?
Year structure was originally built.
Located on a farm?

2. *Characteristics of dwelling unit:*

Number of rooms.

Water supply: in dwelling unit—running water, hand pump; within 50 feet of dwelling unit—running water, other.

Toilet facilities: in structure—flush toilet for exclusive use, shared flush toilet, other; outside toilet or privy.

Bathtub or shower with running water in structure: for exclusive use; shared with other households.

Lighting equipment: electric, gas, kerosene or gasoline, other.

Estimated rental value of owner-occupied or vacant non-farm dwelling.

Occupancy status of vacant dwelling: for sale or rent—ordinary dwelling, seasonal dwelling; held for absent household—ordinary dwelling, seasonal dwelling.

3. *Characteristics of occupied dwelling unit:*
Home tenure: owned, rented.
Color or race of head of household.
Total number of persons in household.
Refrigeration equipment: mechanical, ice, other.
Is there a radio in this dwelling?
Heating equipment: central steam or hot water, piped warm air, pipeless warm air, heating stove.
Fuel for heating: gas, coal or coke, wood, fuel oil, kerosene or gasoline, other.
Fuel for cooking: electricity, gas, coal or coke, wood, kerosene or gasoline, other.
Monthly rental or renter—occupied dwelling.
Rental value without furniture of renter-occupied non-farm dwelling with use of furniture included in rent.

Cost of utilities and fuel paid for by non-farm renter in addition to monthly rental.
Value of owner-occupied home.

If owner-occupied non-farm, is property mortgaged?

4. *Mortgage characteristics of owner-occupied non-farm 1- to 4-family structure:*

Present amount of outstanding indebtedness on first mortgage or land contract; on junior liens.

Frequency and amount of regular payments on first mortgage or land contract.

Do these regular payments include principal reduction?

Real estate taxes?

Interest rate on first mortgage or land contract?

Type of holder of first mortgage or land contract; building and loan association, commercial bank, savings bank, life insurance company, mortgage company, HOLC, individual, other.

It can thus be seen that the coverage on America's dwelling facilities will be practically complete. The questionnaire was prepared with the collaboration of all Government agencies interested in housing, and of a large number of interested trade associations, financial groups and research organizations throughout the country.

The tabulations from the Housing Census will include the number of persons in each unit, together with the number of rooms; this will bring out accurate data on overcrowding. The need for modernization in homes for various sections of the nation will be indicated by tables for states, cities and counties. Average mortgage indebtedness tables will prove of great value to all financial institutions interested in proving the soundness of their investments and the possibility of mortgage expansion.

The manufacturers and distributors of housing materials and equipment have much to gain from the tabulations of the data on equipment and the need for major repairs. The demand for both home modernization and for new convenience and sanitary equipment in the average American home of the lower-value brackets is already recognized; but the facts to be brought out by the census and published by relatively small geographical divisions will enable manufacturers and distributors to prepare sales campaigns for repair and modernization with an exact knowledge of their market.

The Housing Census will be of great value to state and municipal planning commissions and housing authorities and to Federal departments interested in improving the homes of America. Not only will cities be able to judge more accurately than ever before their needs for new housing projects, but an analysis of the distribution of their housing plants will give them highly useful information on which to base plans for the expansion of rapid transit and communications systems, schools, sanitary and street improvements, police and fire patrols in areas newly being developed, and possible re-allocation and expansion of social welfare, public assistance, public health and nursing services in areas which prove to be overcrowded and ill-housed.

Housing facts will in all probability be coordinated with certain major information classifications from the general population schedule, such as composition of household, number of minor children, wages and salaries, socio-economic groups and possibly others. Thus for the first time the household and its home will be brought together in census statistics, and the actual living conditions of the people of America will become known.

A. W. VON STRUVE,
Bureau of the Census.

Financial Effects of Annexing an Adjacent Unincorporated Area

By ARTHUR RICHARDS
Engineer Executive,
Larchmont, N. Y.

THE theoretical and practical purposes for consolidating two adjoining municipalities is to secure a reduction in total governmental costs. There are many potential benefits and advantages that can come to the people of several adjoining municipalities through a merging of their public, commercial and social community interests, and it is self-evident that one jurisdiction is better than several in the planning, control and administration of local public affairs where presently overlapping governments or jurisdictions exist.

The study here reported relates to a short method of analysis for determining the approximate financial effects which would be caused by the annexation of the unincorporated section of the Town of Mamaroneck to the Village of Larchmont. The boundaries of the respective areas are shown on the accompanying map.

FINANCIAL STATISTICS

Item	Larchmont	Town Section
Assessed valuation	$26,251,591	$30,994,562
Local tax levy	368,960	486,240
County-state tax rate	6.2499	6.2499
General town tax rate	2.3249	2.3249
Local operating tax rate	6.5120	6.0990
Tax rate—A	15.0868	14.6738
Local debt tax rate	7.4380	9.5890
Tax rate—B	22.5248	24.2628
School tax rate	10.3085	10.3085
Total tax rate per $1,000	32.8333	34.5713

Alternative Plans

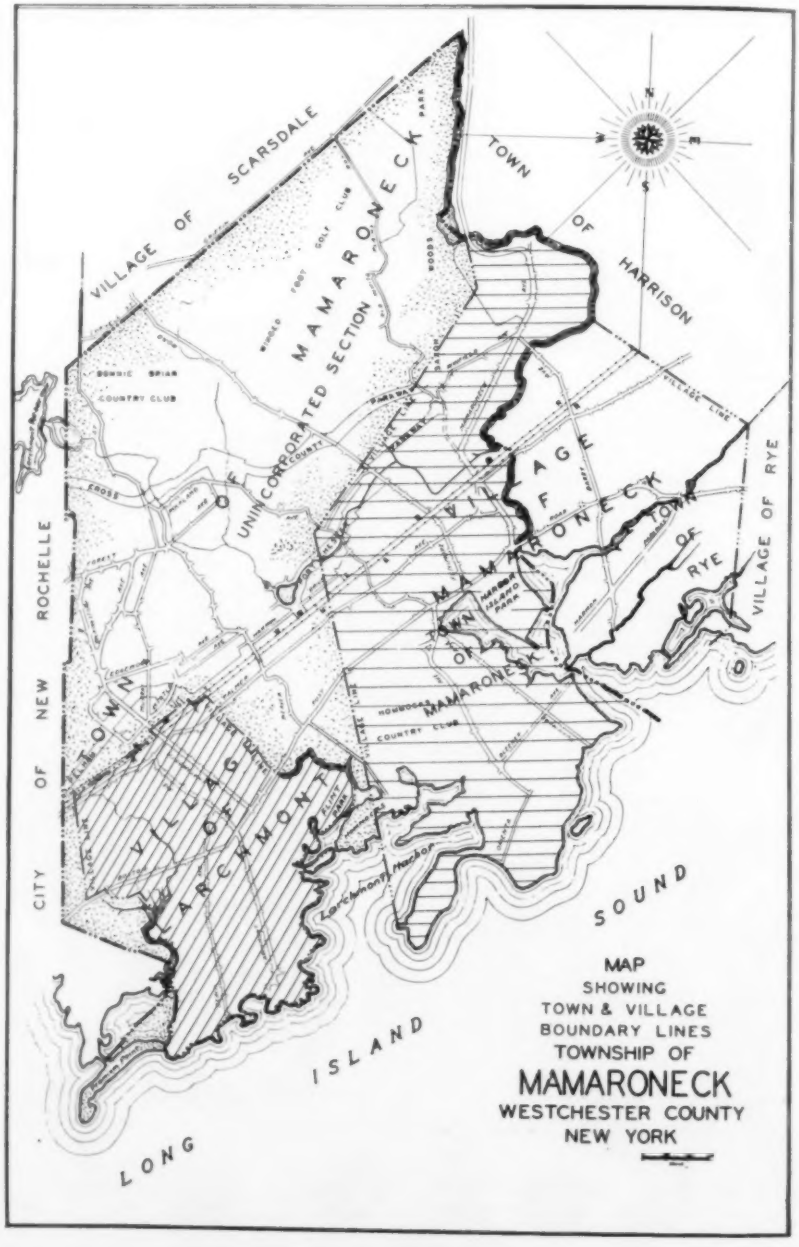
Plan A provides that the costs represented by Tax Rate-A will be assessed equally over the combined unit, and the present debt service of each unit would be amortized by each unit and not be a combined charge.

EFFECT ON BASIS OF TAX RATE—A, 14.6738, OF THE TOWN SECTION

Combined assessed valuation		$57,246,153
Total tax levy		857,645
Revenue at rate of 14.6738		840,018
Reduction in tax levy		17,627
Summary of Plan A	Larchmont	Town Section
Rate used above	14.6738	14.6738
Debt tax rate	7.4380	9.5890
School tax rate	10.3085	10.3085
New total tax rate	32.4203	34.5713
Reduction on present rate	0.4130	0.0

By reducing the consolidated costs $17,627, the tax rate to the Town Section would be $34.5713 as at present, while the rate for Larchmont would be reduced $0.4130 per $1,000 valuation. If the cost is reduced by more than $17,627, then both units would benefit, and for each additional reduction of $1,000 in costs the tax rate of each of the units would be lowered $0.0117 per $1,000 valuation.

Plan B provides that the costs represented by Tax Rate-B, or the total operating and debt service



costs, shall be assessed equally on the consolidated unit.

EFFECT ON BASIS OF TAX RATE—B, 22.5248, OF LARCHMONT

Combined assessed valuation	$57,246,153
Total tax levy	1,350,130
Revenue at rate of 22.5248	1,289,458
Reduction in tax levy	60,672

Summary of Plan B	Larchmont	Town Section
Rate used above	22.5248	22.5248
School tax rate	10.3085	10.3085
New total tax rate	32.8333	32.8333
Reduction on present rate	0.0	1.7380

By reducing the consolidated costs $60,672, the tax rate to Larchmont would be $32.8333 as at present, while the rate for the Town Section would be reduced $1.7380. If the cost is reduced by more than $60,672, then both units would benefit, and for each additional reduction of $1,000 in costs the tax rate of each of the units would be lowered $0.0143 per $1,000 valuation.

As shown in the first table, the debt service of the Town Section is considerably higher than that of Larchmont. Because of this, Larchmont would secure under Plan A a tax reduction of $0.4130, as it would not have to assume part payment of the Town debt.

Under Plan B where the Town debt service would be combined with that of Larchmont, the Town Section would secure a tax reduction of $1.7380 if the total costs for the consolidated unit could be reduced $60,672. The Larchmont tax rate, however, would remain as at present.

If under Plan A the tax levy were reduced $30,000, or about half of that required under Plan B, the tax rate for Larchmont would be lowered $0.570, while that for the Town Section would be reduced $0.157 per $1,000 valuation.

It would appear that such a reduction in the cost of the consolidated government would be feasible and, therefore, Plan A may be the preferable one to adopt in order to secure a partial tax reduction for both units.

This short method of analysis would indicate that a complete consolidation study should be undertaken to determine what reductions could be made in the consolidated expenditure budget, and the effect such reduced budget would have on the present tax rates of Larchmont and the unincorporated section of the Town.

From Survey Graphic's "Homes"

(*Continued from page 58*)

For Every Family

The housing movement in America rests on the soundest possible basis: a deep belief that the resources and skill of this nation *should* make it possible for everyone to live in a decent, comfortable and attractive home. But to fulfill this belief we must all know and recognize three things very clearly: How do we really want to live? What is the least we should expect of new dwellings? And, when is a house no longer fit to be occupied?

CATHERINE BAUER AND JACOB CRANE.

Social Purposes and Plans

The argument comes to this. This period of expansion is over; and we have now to create the physical structures and the mode of life appropriate to a period of stability and culture. Today we are making the mold in which the future will be set. . . . In consequence, we must think and plan as boldly today, in terms of human welfare, as our predecessors did in terms of private enterprise and purely material organization.

Planning is but the first phase of building; this applies to regions as well as houses. Building is but the initial setting of the stage for living; and living is a progressive transformation or displacement of physical obstacles, for the purpose of releasing man's higher functions as a thinking, feeling, creating personality. The time has at last come when industry and agriculture, long chained to the original task of insuring man's bare survival, may become an instrument in his collective design, as responsive to his imagination as the brush in the hands of a great painter. Our only trouble in facing this period of social realization is not lack of physical means; our main handicap will be lack of imagination. This is one of those times in human history when only the dreamers will turn out to be the practical men.

LEWIS MUMFORD.

Back to the Land?

Underlying the need for a better distribution of population is the drift of employment away from both manufacturing and farming. On the whole, neither will ever support an increasing number of workers. The majority of gainful workers are already in service occupations, and the proportion will steadily increase. By forming decentralized, workable communities of sufficient size, with a suitable share of self-containment, it will be possible to bring millions of people within range of the civilized services, with money enough to pay for them. As this readjustment is gradually perfected, there will be an opportunity to employ the necessary percentage of workers in services—which is, of course, the ultimate answer to technological unemployment in factory and farm.

DAVID CUSHMAN COYLE.

One Nation Indivisible

Since many feel that the American tradition is one of complete freedom and lack of orderly development, it may be well to point out that our nation was built on many planned concepts. The pioneers came because of dissatisfaction with old conditions, and their intention was to build up here a land in which they could live safely and pleasantly. From the Anglo-Saxon pioneer in New England grew neat villages, towns, and cities, laid out functionally with care, with churches, greens, and trees.

While much of our background of planning is good, it has been engulfed by industrial, economic, land-speculation and spectacularly-uncontrolled growth.

To prevent the continuation of mistakes, one must plan; and national and city planners are able to prove to a people averse to direction that planning for the best interests of everybody does not mean necesarily a curtailment of civil liberties, and may even become a factor in their increase. National planning, as a part of the democratic process of the United States, can function only as a summation and integration of local, state and regional needs and plans; it cannot be boldly imposed from above. Incidentally, we can also demonstrate that it is good business.

CARL FEISS.

Law and the Builders

A great deal of legal progress, particularly in a new field, is a process of education—education of the public, education of public officials, education of judges.

The causes of housing, planning and urban rural reconstruction and conservation can only be advanced as legal techniques are perfected and the necessary new legal tools with which to attack these problems are invented. To secure these involves a long and arduous struggle—a struggle in which public awareness and organization are the most important factors.

IRA S. ROBBINS.

A Mayor Has His Troubles

Many of Which Are Solved by Planning

By Walter H. Blucher
Executive Director, American Society of Planning Officials

A FRIEND of mine wrote to me a while ago, saying that his father had been elected mayor of their city and seemed to be having more than the usual difficulties as head of the city. He asked if I would stop in to talk with his father on one of my trips to that part of the country.

For the purpose of this record we will call the mayor John Jamison, and the town in which he lives Middleburg. Middleburg is a prosperous community of about 50,000 persons. It is situated in the Middle West. It has a few substantial and varied industries. Apparently it did not suffer any of the effects of the depression during its early years.

John Jamison, when I called to see him, was 57 years old. He was one of the leading citizens of the community and had retired two years earlier as president of the town's leading bank. He owned a home in one of the better residential neighborhoods, a home which he had built some twenty years before. Since retiring he had traveled a little, but spent most of his time working in the garden, and he had a very great interest in his grandchildren.

He had been approached one day about nine months prior to my meeting with him by a group of citizens. Their leader said, "John, you know the government of this town is wasteful and inefficient; it probably is crooked like most governments; taxes are too high; something ought to be done about it." "Yes," said John Jamison, "I guess taxes are pretty high here, but what do you propose to do about it?" "We want you to run for mayor," said the delegation. "Me! Run for mayor?" said John Jamison. "Why I don't know anything about running the city government." "Oh, you don't have to know anything about running the city government," said this group of leading citizens. "We know that you were a successful business man, and we know that you are honest." "Well," said John Jamison, "give me a couple of days to think it over and I will let you know."

Several days later he told them that he would run for mayor. His name was entered in the primaries and, in spite of the fact that the leading citizens took very little interest in the campaign, he was nominated. At the election in November he was elected. On January 1 he took office. A number of the leading citizens were present at the inaugural.

I merely wish to add at this point that prior to the time that John Jamison sought office he knew the name of only one member of the Council. He didn't know a single department head, and he had been in the City Hall only once in the past three years. He had complained about his taxes on several occasions, but each time his lawyer had appeared for him before the board of review.

$100,000 for Relief?

John Jamison told me this story, and then he went on: "And then my troubles really started. One week after I had been in office the Director of Welfare came to me with a request for $100,000 to take care of 1,400 families on relief. I expressed astonishment that we had so many families on relief. I told the Director of Welfare that they probably were lazy and didn't want to work and that if they were thrown off they would easily find jobs. I asked him what he needed the $100,000 for, and he said he needed that money for food, fuel and shelter. When I expressed astonishment at his statement that he had to provide for their shelter, the Director of Welfare said: 'Yes, some of these people literally are living in hovels that are not fit for animals, and if you don't believe me I shall be glad to take you out and show you some of them. As to their being lazy, you are 100 per cent wrong. Every person capable of earning a living but who is now on relief has tried many times to get a job; and if you want to know why these people can't get jobs, go over and take a look at the two empty factories whose owners moved out of town.'"

Mayor Jamison was honest enough to admit to me that he had known nothing about this situation and hadn't even heard that the two factories had moved out of town. He continued: "When I asked the Director of Welfare where we were going to get the money, he said he didn't know and he didn't care—that was my job. All he knew was that he had 1,400 families that had to be taken care of." Then the Mayor turned to me and said, "Blucher, what would you have done under the circumstances?" And I said, "Well, go on with your story and a little later I will tell you what I would have done."

"A couple of weeks later," he continued, "I had a delegation from the south side of town complaining about the traffic delays and the accidents on Second Avenue, which runs between the south side of town and the business center. They said that they wanted the street widened so that they could get down town more easily. When I asked them how much the project would cost and where the money was coming from, their answer was that they didn't know and that it was my job to find out. What should I have done in that case?" Again I said, "Go on with your story." So he continued:

Wider Streets or Less Parking?

Three weeks after that a delegation of business men came in from the east side. Their complaint was that they were losing business because their customers had no place to park their cars. The Police Department was enforcing the no-parking rule during the morning and evening rush hours, and customers were threatening to go to other parts of town where it was easier to park. The delegation wanted me to do something about it. When I asked them what I was to do and how much it was going to cost, they too said they didn't know—that was my job.

Strangely enough, these business men had no more than left my office when I received another delegation of residents from the same part of town. Apparently they had heard that the business men were coming down to complain. These residents also had a complaint. There was so much parking on the side streets that they couldn't park their cars in front of their own houses. There were cars parked even in the driveways so that they couldn't get in or out, and they wanted me to do something about it awfully fast, but they didn't tell me what I should do or how much it would cost.

Housing and Schools

About a month later one of the city officials came to me and said that he had heard that there was a Federal law which would permit the city to obtain money for housing purposes, and that he thought it would be a good idea for me to write to Washington to ask for a couple of million dollars. I agreed, and wrote a letter to the Federal officials telling them that I had heard that there was a new law, and that we could use two million dollars for low-cost housing purposes in the city of Middleburg. I got back a letter from Washington saying that it was true such a law had been passed and the money was available, but that they would have to have a lot of information before they could make a loan to our town. They wanted to know if we had a housing authority and whether any studies had been made. They wanted to know how many low-income people there were and how much income they received. And they wanted information on the condition of buildings, the number of vacancies, and the rental market. Oh, there must have been a dozen pages of information that they wanted. I didn't have the information, and I had no way of getting it that I knew of.

Later another group came in to see me. This time it was the Parent-Teachers Association. They wanted a new elementary school. They complained that the children in a particular neighborhood had been going to temporary schools for two years, and that it was time we built them a permanent structure. Children had been attending half-day sessions in drafty school buildings, and it was time that the city provided them with decent school facilities. I will say one thing for this group—they at least had an idea of what the new school would cost—about $400,000. When I asked them where the money was coming from, they didn't know. When I told them that some of that same group had been urging me to cut taxes, their apparent inconsistency didn't bother them in the least. I told them I would take the matter up with the Council to see if we could find the money, since I felt that their request was reasonable.

The Council considered the matter for some time and made up their minds to build the school, but decided to hold a public hearing before taking action. Just when they were about to take formal action, a young man sitting in the Council chamber asked if he might be permitted to speak. He gave his name, said that his father owned a modest house, which was their only property, and stated that he was a student at the near-by university. He had some information which he thought the Council ought to have before they took action to bond the city for $400,000 for a new elementary school. He said that it is a well-known fact that the curve of population increase is falling off and that we probably shall have a stable population within the next quarter of a century. He said also that we are getting an older population in this country and that we aren't producing enough children in the city of Middleburg to provide for even a stable population. Then he went on to say that although there appears to be a need for a new school at the present time, it is quite probable that we shall not need an elementary school three years from now, but that it is equally probable that we shall need new high-school facilities at the end of three years. This young man quoted figures from Chicago and Baltimore to prove his point and showed that of the new elementary schools built in Baltimore since 1920, and even since 1929, most of them were already 30 to 40 per cent unused. Well, the Council decided not to build the school.

Recreation and Zoning

Then spring came, and I had another delegation wait upon me. They said that school would soon be out and that the town did not have suitable recreation facilities. They said that they had seen a report showing how many playgrounds and parks each community ought to have, and that they had found Middleburg far below the standard. The town does not have suitable tennis courts and baseball diamonds for the summer recreation of its children. It doesn't have any large open parks. It has a stream, but one so polluted that children cannot swim in it, and there isn't a single swimming pool in the town. They wanted recreation facilities for their children, but when I asked them how much these would cost or where the money was coming from, they said that they did not know—that was my job.

And then, to cap the climax, my wife called me one day. She said, "John, we *have* got trouble." And I said, "Certainly not any more than I've had since I took this job!" "Yes," she said, "they are starting to build a gasoline station on the vacant lot next to our house." I told her they couldn't do that, the property was restricted, and to forget about it because I would call my lawyer. I did call my attorney, and he said, "Give me a day to look into it." The following day he called me and said, "You *are* in trouble, John. The property on which your house is located was restricted for twenty years and those restrictions have now expired." And then he rubbed it in a little by saying, "You remember that a few citizens came into the council a couple of months ago urging that the city adopt a zoning ordinance. The Council did not give them much consideration because a group of persons came in and said that a zoning ordinance would stop the progress and expansion of the city. They said a zoning ordinance would damage real estate values, and so the Council did nothing about it. Well, one of those persons who objected to the zoning ordinance is the present owner of the vacant lot next to yours—the man who is threatening to build the gasoline station."

Isn't there some process, some method, Blucher, by which I would have been in a position to provide an answer to these many questions? Surely, with all the experience we have had with local government in this country it should not be necessary for an ignorant mayor to go through these meetings and hearings, these trials and tribulations, without knowing what can be done in each case.

What Might Have Been Done

I answered John Jamison's questions then. I said to him:

I can't provide you with a sure-fire remedy, but let's look at each of these situations and see what might have been done.

The first man you told me about was your Director of Welfare, who told you about the deplorable condition of the houses in which the relief families were living and about the factories that had moved out of town. Now let us suppose that you had had an active, properly-financed, properly-staffed planning agency in your community. I don't care what the composition of that agency might have been. It might have been a commission or a department of the city government, or just one person. What would it have been doing all these years? If it were the right kind of organization, the first thing it would have done would have been to prepare a comprehensive land-use, social, and economic survey. It would have

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determined the condition of every residence: when it was built; how many rooms it contained; how many persons lived in it; where they worked; how they got to work. It would have made a survey of industries, and could have told you how many people were employed in each industry over a period of years. When your Director of Welfare came in, this planning agency, by consulting its records, would have been able to give you a picture of the condition of every building in which a relief family lived. It probably would have told you that those two small industries moved out of town because they could not compete with the large monopolies in the same field, and it would have told you that when the factories closed up, a certain number of people lost their employment.

When the second group came in asking for a street widening, your planning agency would have made a study of the situation. It might have determined, for instance, that the congestion existed for only a half-hour in the morning and a half-hour in the evening. It could have told you how much a street widening would cost. It could have told you how many people came down-town each day, and it might have been able to show you that by resurfacing a parallel street no further action would be necessary. I can see the planning commission's coming in to you with a report outlining the situation fully, telling you that the cost of such a street widening would be $300,000, recommending that the petition be denied, and giving you sound reasons for the denial of that petition.

Data from the Planning Agency

When the two groups of citizens came in, complaining about parking, your planning agency would have made a study of the situation and might have discovered that the reason for much of the inconvenience arose from the fact that the merchants and clerks were parking their automobiles in front of their stores. It might have said also that there was excessive congestion and that parking facilities ought to be provided, not through an expensive street widening, but perhaps by acquiring cheap property in the interior of the block, off the street. It might have suggested that the cost of this improvement be borne by the stores. If your experience is similar to that of other cities, the merchants probably would have agreed to such a plan.

You remember the long questionnaire that you got from the housing agency in Washington? Well, if your planning agency had been the right kind of planning agency, it would have obtained for you from its land-use social and economic survey every bit of information required by Washington. It would have been in a position to tell you immediately what the housing requirements of the city are. It might have told you that it had made some neighborhood studies which indicated that rehabilitation was desirable in some areas, and that with suitable protection private agencies might provide housing with Federal insurance. It might have said that a limited amount of subsidized housing is needed for people on relief, or it might conceivably have told you that there is no present need for public housing in Middleburg. The point that I want to impress upon you, Mayor Jamison, is that if you had had a good planning agency, it would have been able to relieve you of all the troubles associated with your housing program.

That school which you almost built —well, you were awfully lucky. You were fortunate that the young man who knew something about the characteristics of population happened to be in the audience. But why depend upon luck? An efficient planning agency would have told you the same thing, and would have backed up its statement by incontrovertible facts.

And what about the complaint regarding recreation facilities? Here again your planning agency would have made a study of the city. It would have determined what the actual needs of this community are, not by rule of thumb, but by studying the composition of the population and the character of the community. Obviously, an industrial population living on small lots requires more public recreation space than does the population of a residential suburb living on very large lots, and a city with a great many children requires more playgrounds than does a city of elderly people. The planning agency might also have discovered that there are certain areas in the city which can be acquired very cheaply and perhaps developed with the aid of the WPA. It might even have found some of your wealthy citizens who would be willing to deed recreation areas to the community. This stream of yours might very well be cleaned up and made into an asset rather than a liability.

The gasoline station next to your house—well, one of the first jobs of the planning agency would have been the preparation of a zoning ordinance. Not one of the old-fashioned kind, not a negative instrument designed to keep people from doing things, but a positive pattern for the best use of land in your community. Then you probably never would have been troubled by the gasoline station in your fine residential neighborhood.

Big Benefits at Small Costs

You see, Mayor Jamison, the planning agency is not infallible, it cannot solve all of your problems, but it could have helped you to find solutions for those you told me about. The planning agency is your research staff—it gathers facts, it analyzes those facts, and it provides you with information which will help you to answer your problems—that is, Mayor Jamison, if it is the right kind of planning agency, with adequate financing and a suitable staff. I don't mean by that, that it has to have a hundred thousand dollars. A few thousand dollars in this town would have done the job, and you would have been in a position to be of infinitely greater service to the city of Middleburg than you, as a successful business man but an ignorant public official, have been able to be.

As a banker you wouldn't have loaned any money to an industry unless that industry came to you with a carefully thought-out program and plan for what it proposed to do with the money. Why should you treat the city any differently? You have only a limited amount of money with which to operate. It isn't your money. It's the money of all the citizens, rich and poor. Why shouldn't you insist that the city also have its plan, its program for the expenditure of its monies? Because of your business and banking experience, Mayor Jamison, you have shown much interest in purchasing and budgeting, but you have overlooked the fact that the first essential of good city government is good planning.

—An address at the Fifth Southeastern Planning Conference.

Ways to Cut City Costs

THIRTY New York City employees received $1,200 in prizes on January 22, in a contest held by the Civil Service Good Government Contest Committee, for best suggestions for eliminating unnecessary city expenditures. More than 600 suggestions were received from 252 contestants.

The first prize of $250 was won by T. C. Kavanagh, a junior topographical draftsman in the Bureau of Engineering of the Board of Estimate, for his suggestion to establish city-wide cost accounting. Joseph C. Beshears, a laborer in the Park Department, won one of the two second prizes of $150 with his proposal that the city establish a city-wide reclamation yard, and gather there all old brass, copper, steel, iron and other scrap, as well as other equipment and material, for use or for sale to the highest bidder. The other second prize was awarded to Dr. I. L. Nascher, a retired Chief Physician from the Department of Hospitals, for his suggestion to save the city $300,000 a year on exempt city-paid positions in private hospitals and institutions.

Other suggestions which received prizes were: a repair unit for the city's 15,000 typewriters; electrical inspection by one department, not three; metered auto service from central garage; sell waste paper from schools.

New DIESEL TRACTRACTOR
by INTERNATIONAL HARVESTE

A YEAR AGO we announced the big, powerful TD-18 TracTracTor, a new top for Diesel crawlers. Today International Harvester presents a rugged quartet of streamlined crawlers —TD-18, TD-14, TD-9 and TD-6. FOUR *Diesel TracTracTors for 1940*—big news from the world's leading tractor builder to *all* operators of crawler tractors!

Here's the complete line-up for you to look over—the big fellow at the right, already a popular favorite in the heavy-crawler field; his little brother at the far left; and the step-ups in between. There's not an ounce of lazy horsepower in any of them! They're ready to tackle their weight in wildcats—each one is ready to lick the crawler-power problems in his ran

In this complete series of TracTracTo INTERNATIONAL offers you a new standa of Diesel performance and economy—p fectly designed balanced power in capaci to meet every demand of crawler-tractor use Standardize on International and enjoy all t advantages only Harvester can provide. G the full story from any International industr power dealer or Company branch, or write

A great variety of specially designed allied equipment available for all TracTracTor sizes.

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Juvenile Delinquency as Affected by Housing and Recreational Facilities

By A. B. Horwitz
City Planning Engineer,
Duluth, Minn.

IN A recent study of recorded juvenile delinquency in Duluth, a high degree of correlation was found to exist between the amount of delinquency in a neighborhood and the extent of poor housing conditions, low economic income, and inadequate recreational facilities. The study was undertaken by the Duluth City Planning Department as a WPA project.

All delinquency cases during the years 1928-1936 on record with the Juvenile Court and Probation Officer against delinquents living in Duluth were tabulated by age, by sex, by type of offense, and by census tract or neighborhood in which the delinquents lived.

With the aid of the Duluth public and private welfare and relief agencies, data were developed showing, by census tracts, the percentage of all families on relief and the percentage of families of delinquent children on relief. Extensive housing data were available by census tracts, from a Real Property Inventory also conducted in 1936.

This city of 102,000 population is divided into 38 census tracts, as shown in Fig. 1. Some of these areas have small juvenile population or very few delinquents. In order to obtain larger numbers for more reliable results, the census tract data for male juvenile delinquents were combined to show the information by quartiles, each quartile being composed of a group of census tracts containing approximately one-fourth of the city's male population ages 8-17. (The ages over which the Juvenile Court has jurisdiction are 7-17, but there were so few cases of age 7 that that age was eliminated.) The first quartile contains the census tracts of highest male juvenile delinquency. The second quartile contains the group of census tracts second highest in delinquency, etc. Male data were used because males constitute 82 per cent of the delinquents and are charged with nearly 85 per cent of the delinquency cases.

The housing and relief data were also tabulated by these quartiles or groups of census tracts. The housing conditions so tabulated were: per cent of structures devoted to business; per cent of structures in need of major repair or unfit for use; per cent of dwellings built prior to 1905; per cent of dwelling units not in one-family structures; per cent of dwelling units with more than one person per room; per cent of dwelling units with monthly rentals under $15. All these items represent unfavorable neighborhood and home environment for the raising of children. Figure 2 and the following table show the high degree of correlation which exists between the extent of juvenile delinquency in a neighborhood and the proportion of housing units with undesirable conditions for families with children.

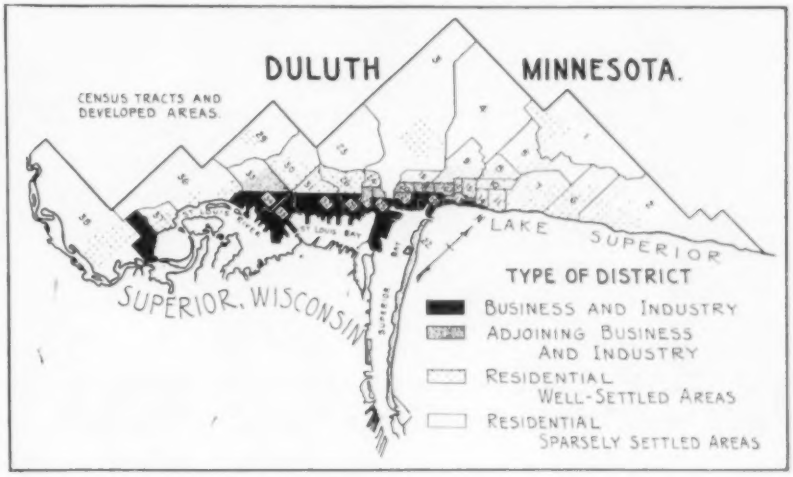


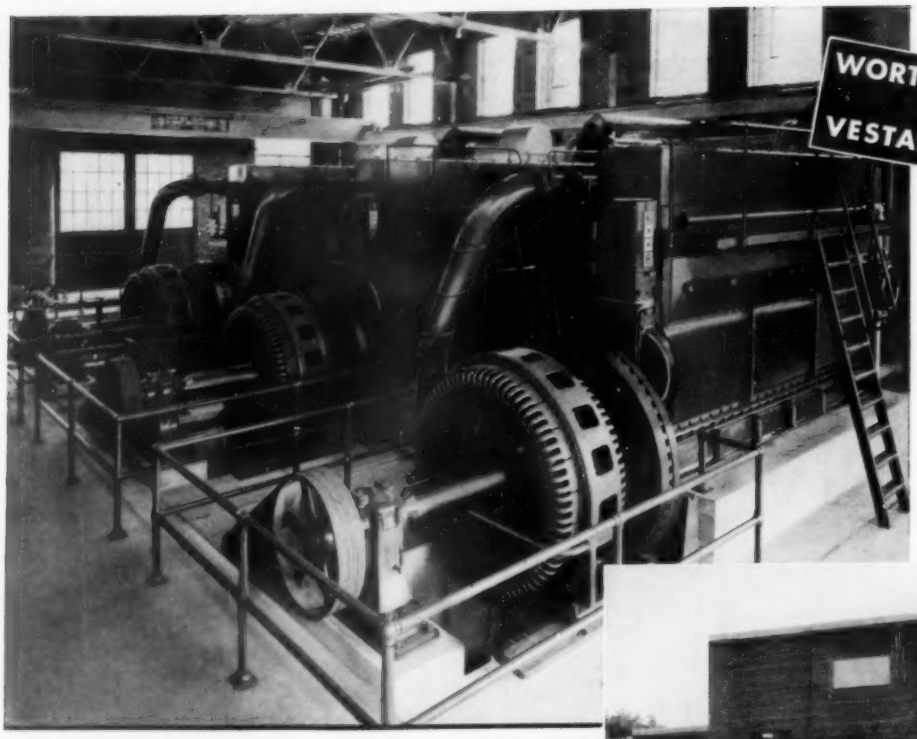
Figure 1

The Juvenile Delinquency Study shows broken homes, failure in school, and inadequate neighborhood recreational facilities to be other factors closely related to delinquency. Physical and mental abnormalities of children and the quality of upbringing in the home are still other known factors in delinquent behavior. It is difficult to determine the degree to which poor housing conditions are a direct cause of delinquency, but due consideration of all the data in the Study tends to indicate that, independently of all other causes, cer-

COMPARATIVE SOCIAL AND ECONOMIC CONDITIONS—SUMMARY TABLE
(Housing data as of February 1936)

	Quartile With		Census Tract With		City Average
	Highest Delinquency Rate	Lowest Delinquency Rate	Highest Delinquency Rate (1)	Lowest Delinquency Rate (2)	
Male juvenile delinquency rate	42.6	5.7	58.1	4.2	20.0
Female juvenile delinquency rate	7.3	1.6	12.8	0	3.8
Proportion of structures used for business	22.0%	2.3%	69.7%	0	9.2%
Proportion of residences in need of major repairs or unfit for use	25.0%	6.3%	38.6%	1.2%	15.5%
Proportion of residences over 30 years old	68.1%	17.2%	80.6%	0.9%	31.2%
Proportion of "dwelling units" not in 1-family structures	69.6%	25.8%	95.5%	0.3%	41.9%
Proportion of families with more than 1 person per room	17.3%	8.3%	27.5%	2.1%	13.6%
Proportion of "dwelling units" with monthly rentals under $15	48.5%	13.4%	76.8%	1.9%	32.5%
Proportion of families with children in school who received relief 6 weeks or longer in 1934 or 1935	43.0%	16.0%	*	*	29.5%
Proportion of families of delinquent children who received relief 6 weeks or longer in 1934 or 1935	51.0% (3)	30.0%	*	*	49.0%

* In these instances the number of families are too small upon which to base percentages intended to represent general conditions.
(1) The rates shown in this column are not, in some instances the highest in the city; in those instances they are close to the highest rate.
(2) The rates shown in this column are not, in some instances, the lowest in the city; in those instances they are close to the lowest rate.
(3) The 2nd Quartile is the highest in this respect; its proportion is 39%.



WORTHINGTON ENGINES at VESTABURG, MICHIGAN

Three 500-hp. Worthington Diesel Engines direct-connected to generators, installed in the Vestaburg, Michigan, plant of the Tri-County Electric Cooperative. An additional 1000-hp. unit has been recently installed.

TO MEET the need for increased power service this progressive Michigan Cooperative selected Worthington Diesel Engines after a thorough investigation and test of another Worthington installation . . . in its first plant at Eaton Rapids, Michigan. The records for maintained economy and continuous trouble-free operation were convincing.

The excellent performance of these Worthington units has more than justified the decision of the officials, and an additional 1000-hp. Worthington unit has recently been added to the station.

Auxiliary equipment for this installation is also by Worthington . . . the starting air compressors, cooling water pumps and fuel oil unloading pumps . . . giving additional service security through the **undivided responsibility of one maker.**

DIESEL ENGINES 30 to 1500 h. p. **GAS ENGINES** 30 to 1800 h. p. **CONVERTIBLE GAS-DIESEL ENGINES** 30 to 1800 h. p.

Built for continuous operation at medium speeds

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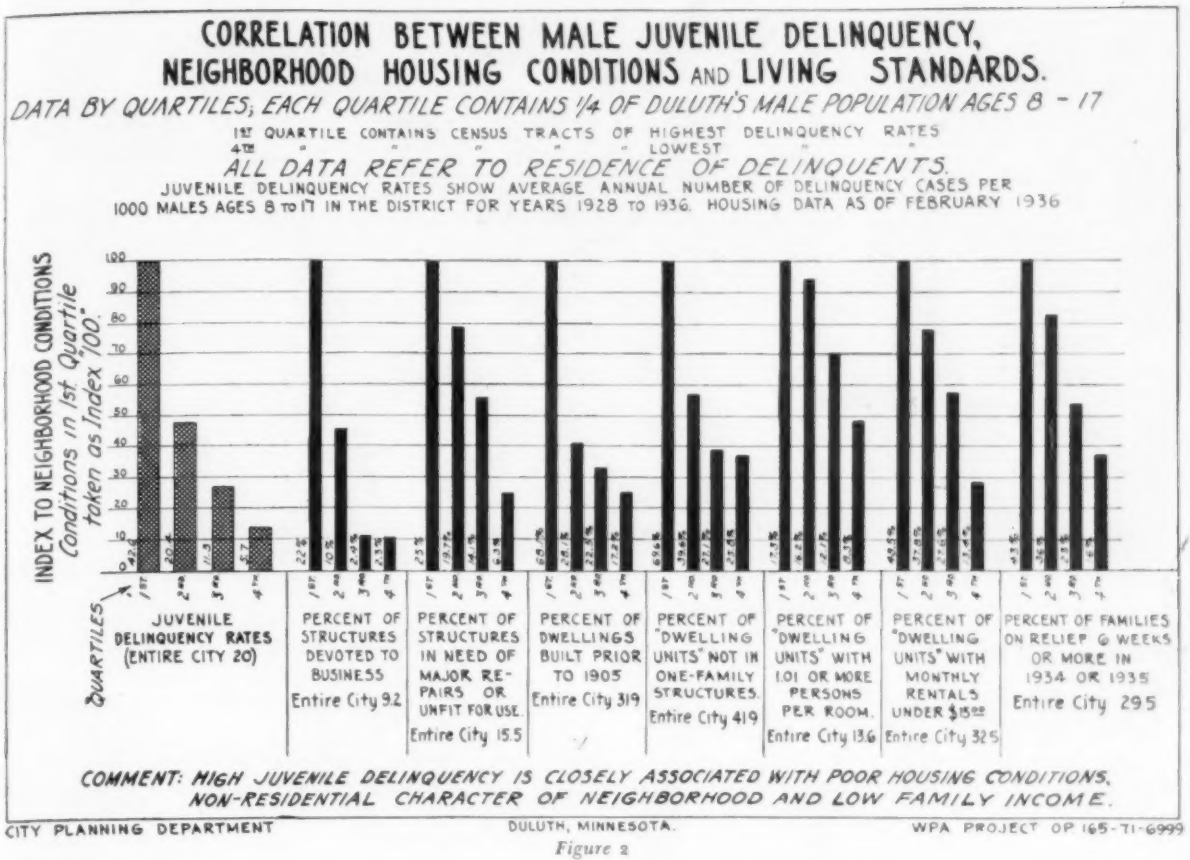
CORRELATION BETWEEN MALE JUVENILE DELINQUENCY, NEIGHBORHOOD HOUSING CONDITIONS AND LIVING STANDARDS.
DATA BY QUARTILES; EACH QUARTILE CONTAINS 1/4 OF DULUTH'S MALE POPULATION AGES 8 - 17
1ST QUARTILE CONTAINS CENSUS TRACTS OF HIGHEST DELINQUENCY RATES
4TH " " " " LOWEST " "
ALL DATA REFER TO RESIDENCE OF DELINQUENTS.
JUVENILE DELINQUENCY RATES SHOW AVERAGE ANNUAL NUMBER OF DELINQUENCY CASES PER 1000 MALES AGES 8 TO 17 IN THE DISTRICT FOR YEARS 1928 TO 1936. HOUSING DATA AS OF FEBRUARY 1936
INDEX TO NEIGHBORHOOD CONDITIONS
Conditions in 1st Quartile taken as Index "100."
QUARTILES
JUVENILE DELINQUENCY RATES (ENTIRE CITY 20)
PERCENT OF STRUCTURES DEVOTED TO BUSINESS Entire City 9.2
PERCENT OF STRUCTURES IN NEED OF MAJOR REPAIRS OR UNFIT FOR USE. Entire City 15.5
PERCENT OF DWELLINGS BUILT PRIOR TO 1905 Entire City 31.9
PERCENT OF "DWELLING UNITS" NOT IN ONE-FAMILY STRUCTURES. Entire City 41.9
PERCENT OF "DWELLING UNITS" WITH 1.01 OR MORE PERSONS PER ROOM. Entire City 13.6
PERCENT OF "DWELLING UNITS" WITH MONTHLY RENTALS UNDER $15.00 Entire City 32.5
PERCENT OF FAMILIES ON RELIEF 6 WEEKS OR MORE IN 1934 OR 1935 Entire City 29.5
COMMENT: HIGH JUVENILE DELINQUENCY IS CLOSELY ASSOCIATED WITH POOR HOUSING CONDITIONS, NON-RESIDENTIAL CHARACTER OF NEIGHBORHOOD AND LOW FAMILY INCOME.
CITY PLANNING DEPARTMENT
DULUTH, MINNESOTA.
WPA PROJECT OP 165-71-6999

Figure 2

tain poor housing conditions are important direct causes of delinquency. The highest delinquency rates for all offenses combined are found among children living in the business and industrial districts, and nearly as high rates are found in the group of census tracts adjoining these districts. Of the several types of residential districts, the highest delinquency rates are found in the outlying sparsely-settled areas of low family income and of very inadequate recreational and character-building agency services.

Standards and procedures were developed in this Study for a service rating of playgrounds and for a quantitative measurement of the effectiveness of playgrounds in reducing neighborhood juvenile delinquency. The service rating of playgrounds made it possible to separate the good-standard from the poor-standard playgrounds. The separation was necessary in order that the benefits of the good-standard playgrounds should not be obscured by any lack of benefits from the poor-standard playgrounds.

Consultation with national recreation leaders indicated close agreement upon the following allocation of 100 points for a perfect playground: leadership, 60; accessibility, 20; size and proper improvement, 20. The latter item was subdivided in the Study as follows: adequacy of play area (3 acres or more considered 100%), 5 points; proper grading and drainage, 5 points; attractiveness of site, 4 points; suitable service building, 4 points; proper equipment, 2 points. Another factor for consideration is the portion of the year during which the playground is in operation. If too short a period, the playground cannot be expected to exercise much effectiveness.

Duluth's nineteen supervised playgrounds were rated on the above scoring system, based on the known characteristics of each playground. Nine were rated as Group A, or good-standard playgrounds; seven were as Group B, or poor-standard playgrounds. Three playgrounds, located in areas in which various neighborhood factors made it difficult to isolate and measure playground benefits, were placed in Group C.

The degree of effectiveness of a playground in reducing delinquency was determined by obtaining the delinquency rates (number of delinquency cases per 1,000 juveniles ages 8-17) in areas at varying distances from the playground but all within a half-mile of it. The latter limit was used because that is ordinarily the maximum distance within which the district is homogeneous in character and because the playground attendance is usually from within this area. The half-mile radius area was divided into four zones or intervals. Zone 1 comprised the area between 0 and 1/8-mile from the playground; Zone 2 the area between 1/8- and 1/4-mile circles; Zone 3 the area between the 1/4- and 3/8-mile circles; and Zone 4 the area between the 3/8- and 1/2-mile circles.

A determination was made of the total male juvenile population ages 10-15 and 16-17 in each 1/8-mile zone about each playground, and of the number of delinquency cases charged against boys of 10-15 and

EUGENE MASTERS

City Manager, St. Augustine, Florida

writes:

"St. Augustine, Florida, the oldest city in the United States, recently had occasion to open one of the main lines of its water distribution system. While a baby in age as compared to the life records of many cast iron water mains, still a half century of usage left this main in perfect condition, both inside and out. The cost of maintenance of this old cast iron main has been negligible – less than 50 cents per mile per year – there never having been a break of any nature according to our records or the memory of our older employees."

LOW MAINTENANCE

is an economy feature of cast iron pipe that is proved by water works records the nation over. An impartial survey among 195 waterworks superintendents shows that the maintenance cost of cast iron pipe is far below that of any other pipe material which has been in use long enough for the recording of conclusive data.

LONG LIFE

To quote Mr. Masters further: ". . . a half century of usage found this main (*shown at right*) in perfect condition. A 4-inch plug was recently removed for a new tap and this cut revealed that the inside tarred appearance of the main was as clean and perfect as the day it was laid."

SALVAGE VALUE

(*Upper left*) A line of 14-inch cast iron pipe, a 43 years' service in the water distribution sys of Kenosha, Wis., was removed and relaid new location. Salvage value is one of the m economies of cast iron pipe.

WATER MAINS represent about one-third of this country's 5-billion-dollar investment in public water supply systems. More than 98% of these mains are cast iron pipe with a *known* useful life at least double the *estimated* life of other water main materials. Because the tax-saving, through avoiding replacements, is enormous, cast iron pipe is known as Public Tax Saver No. 1.

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CAST IRON PIPE

PUBLIC TAX SAVER NO. 1

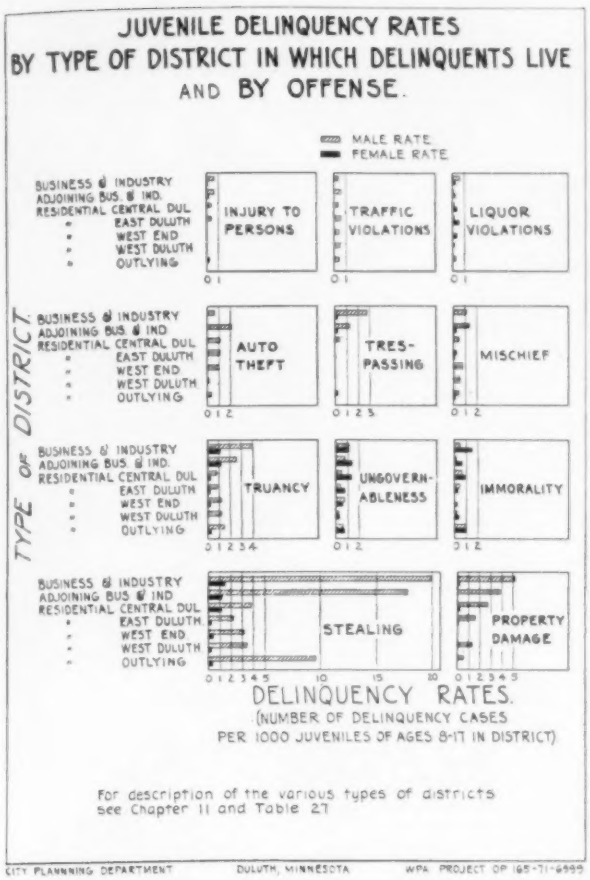

Figure 3

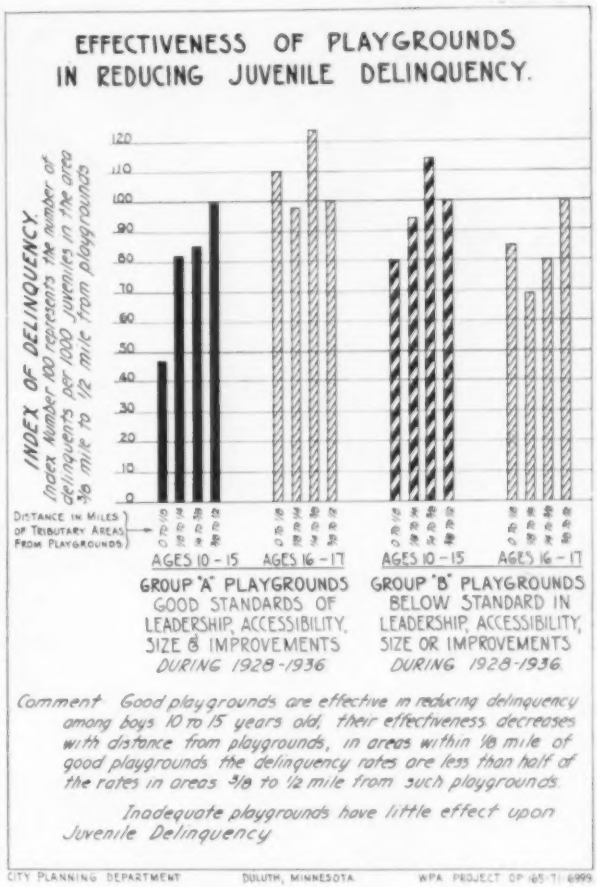
EFFECTIVENESS OF PLAYGROUNDS
IN REDUCING JUVENILE DELINQUENCY.
INDEX OF DELINQUENCY.
Index Number 100 represents the number of delinquents per 1000 juveniles in the area 3/8 mile to 1/2 mile from playgrounds
DISTANCE IN MILES OF TRIBUTARY AREAS FROM PLAYGROUNDS
AGES 10 - 15
AGES 16 - 17
AGES 10 - 15
AGES 16 - 17
GROUP "A" PLAYGROUNDS
GOOD STANDARDS OF LEADERSHIP, ACCESSIBILITY, SIZE & IMPROVEMENTS
DURING 1928-1936
GROUP "B" PLAYGROUNDS
BELOW STANDARD IN LEADERSHIP, ACCESSIBILITY, SIZE OR IMPROVEMENTS
DURING 1928-1936.
Comment. Good playgrounds are effective in reducing delinquency among boys 10 to 15 years old, their effectiveness decreases with distance from playgrounds, in areas within 1/8 mile of good playgrounds the delinquency rates are less than half of the rates in areas 3/8 to 1/2 mile from such playgrounds.
Inadequate playgrounds have little effect upon Juvenile Delinquency
CITY PLANNING DEPARTMENT DULUTH, MINNESOTA WPA PROJECT OP 165-71-6999

Figure 4

16-17. In order to obtain large enough numbers for dependable calculations, the male population ages 10-15 in Zone 1 about each of the nine Group A playgrounds were totaled and the corresponding numbers of delinquency cases totaled, then a composite Zone 1 delinquency rate obtained. In like manner, rates were obtained for composite Zones 2, 3, and 4 about the Group A playgrounds, and the rates for each of the four composite zones about the Group B playgrounds. The age grouping 10-15 was used because an earlier playground survey showed that boys of these ages attend playgrounds most frequently. Data were developed for age group 16-17 for purposes of comparison.

A tabulation of block-by-block data indicated that the housing and economic conditions in the four composite zones within each group of playgrounds are very similar.

Figure 4 shows the results. It appears that good playgrounds under good leadership are effective in reducing delinquency among boys 10-15 years of age living within one-half mile of such playgrounds. The greatest benefit is found in Zone 1, the area within 1/8-mile of good-standard playgrounds. If the index of delinquency in Zone 4 is taken as 100, the index in Zone 1 is only 47. The Group B playgrounds show some, but much less, benefit.

In general, the Duluth Study of Recorded Juvenile Delinquency shows that delinquency is concentrated among children living in business and industrial districts, that high delinquency is closely associated with poor housing conditions, with poverty, with maladjustment or failure in school, with broken homes, and with lack of adequate recreational facilities.

WPA Summarizes Accomplishments

PURCHASES for materials, supplies and equipment used on projects of the Work Projects Administration have totaled $1,118,764,000 from the time of the beginning of the program in July, 1935, through September, 1939. Orders went to private firms in every section of the country.

The Bureau of Labor Statistics estimates that private industrialists were enabled to provide 2,565,000 man-months of labor for the final fabrication of materials. This does not take into account the labor used prior to the final fabrication, nor the thousands of man-months required to haul the products to the project sites. Nor does it include the $691,827,000 spent for rentals of motor vehicles, teams and wagons, paving, road building and other construction equipment, office equipment and other supplies.

Accomplishments for the past fiscal year are an example of the type of improvement into which these materials have gone. They include 6,398 new, and 17,339 remodeled or improved, public buildings; 110,000 miles of highways, roads and streets; 17,596 new, and 8,510 improved, bridges and viaducts; 3,277 miles of sanitary and storm sewers; 2,133 miles of new water mains, aqueducts or distribution lines; sewage-disposal plants, water-control devices, and many other public improvements.

Direct employment has been provided for 7,500,000 persons otherwise unemployed.

Burroughs FANFOLD MACHINE

SPEEDS THE WRITING OF TAX BILLS • WELFARE CHECKS • SPECIAL ASSESSMENT BILLS • VOUCHER CHECKS FOR ACCOUNTS PAYABLE • PURCHASE ORDERS • DELINQUENT NOTICES • METER CHANGE ORDERS • AND MANY OTHER MUNICIPAL FORM-WRITING JOBS

JUST TOUCH ONE KEY—

Carriage Opens *Automatically!*

Forms are Released *Automatically!*

Carriage Returns *Automatically!*

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Then—as the operator removes the completed set of forms—

New Forms Lock in Place *Automatically!*

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THE MACHINE —NOT THE OPERATOR— DOES MOST OF THE WORK

Volume jobs such as the writing of tax bills, welfare checks and many other municipal forms must be done on a rigid time schedule. The Burroughs Fanfold Machine offers many time-saving advantages to speed up this important phase of the accounting work.

Burroughs Fanfold Machine permits the use of continuous forms, thus saving time ordinarily required to insert and remove cut forms. Floating carbons, which are automatically retracted from one set of forms to the next, speed the operation and insure maximum service from each sheet of carbon paper.

Ask your local Burroughs office for a demonstration. Or, if you prefer, write direct for complete information.

BURROUGHS ADDING MACHINE COMPANY, DETROIT, MICHIGAN

Mention THE AMERICAN CITY—it helps.

Municipal Electric Power

EVERY five years the U. S. Bureau of the Census issues its picture of the electric light and power industry. The current report presents the industry as of 1937 compared with the statistics gathered for 1932. Some of the increases are due to improved coverage. The figures for municipal electric properties are given in this article.

This most recent official census of electric systems finds (for 1937) 1,860 municipally owned compared with 1,802, in 1932. There are 885 power plants (20 more than in 1932), and 975 distribution systems only (38 more).

There are 523 internal-combustion plants, 257 steam plants, 120 hydroelectric, and 63 composite plants. Prime movers number 292 steam engines (were 418 five years before), 562 steam turbines (were 524), 277 hydroturbines (were 291), 1,622 internal-combustion engines (were 1,322). Increases in generating capacity reported amount to—6%for the steam engines, 30% for the steam turbines, 16% for the water plants, 47% for the internal-combustion plants. Consumption of fuel reached 2,127,906 tons of bituminous coal (11% more than for 1932), 2,589,794 barrels of fuel oil (32% more), 12,630,384 thousand cubic feet natural gas (138% more). The per cent of total kwh generated by each type of plant was as follows:

	Per Cent of Total Output	
	1937	1932
Steam	51	44
Internal combustion	13	10
Water	36	46

During the five-year period, 2 more generating plants appeared in New England, 15 more in the East North Central States, 25 more in the West North Central, 6 in the West South Central, 20 in the Mountain, and 27 in the Pacific states. Decreases numbered 6 plants in the Middle Atlantic, 17 in the South Atlantic, 10 in the East South Central states.

The municipal electric utilities gained 429,209 customers, for a total of 2,656,958. Kwh per residential customer amounted to 772 for farms, compared with 1,085 kwh on private lines, and 850 kwh in cities, against 770 on private lines. Revenues of the municipal systems listed for 1937 totaled $149,544,540, or 27% more than for those listed for 1932.

The only important decline was in street-lighting income, from ten million to seven million dollars, although the number of street-lighting customers increased from 835 to 2,297.

COURTESY OF *This Week*
"AC *or* DC?"

Average Residential Electric Bills

THE United States average bills for residential electric service are higher in the smaller communities, according to a new report issued by the Federal Power Commission. Average bills in cities of 50,000 population or more are $1.40 for 25 kwh, $3.96 for 100 kwh, and $7.21 for 250 kwh. In places of 2,500 to 10,000 the average bills are $1.65, $4.48, and $7.94, and in some still smaller places $1.89, $4.88, $8.47.

Average residential bills of publicly owned utilities in the 3,165 cities of 2,500 population or more are 2 to 33 per cent lower than those of private utilities. In smaller places the bills of private utilities are 2 to 20 per cent lower than those of the publicly owned utilities.

Private utilities serve 89.6 per cent of the communities and 88.3 per cent of the population having electric service in the United States. Competition between the two classes of ownership exists in ½ per cent of the communities having an aggregate population of 4.9 per cent of the total.

During the last four years the average residential bill has decreased 14.5 per cent for 25 kwh, 11.7 per cent for 100 kwh, and 15.4 per cent for 250 kwh.

How Do You Handle Booyahs?

To the Editor of THE AMERICAN CITY:

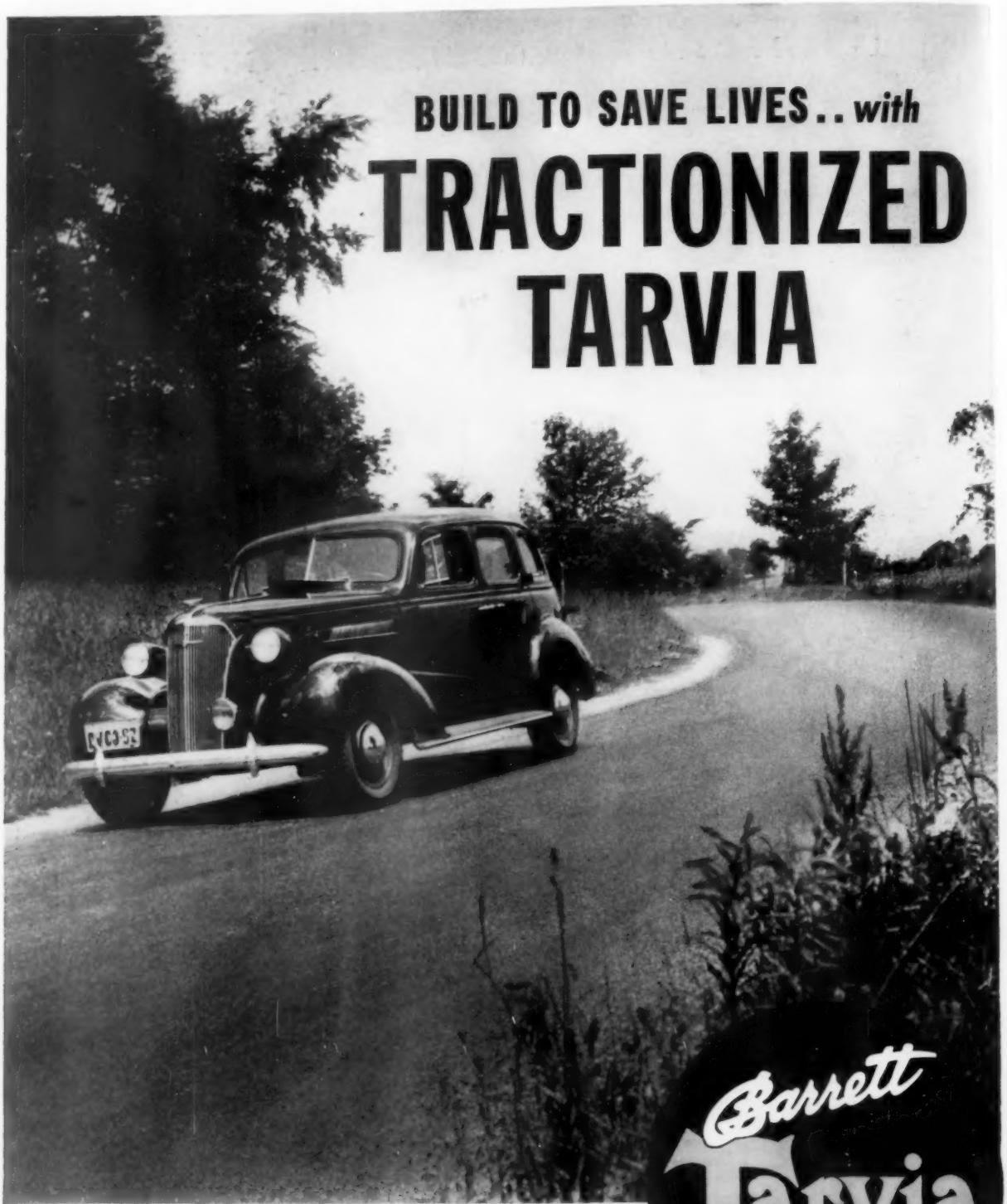
In Green Bay we have a limited frontage of park property called Bay Beach Park, which is the only place where the bay is accessible to the public. On this property we have a picnic area, a dance and recreation pavilion and a bath-house. On July Fourth, Labor Day and one or more Sundays during the summer, certain organizations are given permission by the Park Board to have their picnics, or "booyahs." Up to this year they have not had to pay for this privilege, but in 1939 we made a charge of $25 a day for organizations intending to get revenue from the use of the park.

The question now arises as to whether they should be permitted use of the park at all. A so-called "booyah" consists of large kettles of chicken soup, a beer stand, pop, hamburger and ice cream stands, a bingo or keeno tent housing several hundred people, even paddle-wheel or other such games, and small amusement park rides—in short, a small county fair. This attracts thousands of people, flattens and wears out the turf, messes up the park in general, and usurps all our facilities for the accommodation of quiet family picnics.

James Marshall, Secretary of the Madison Park Department, says that they had the same difficulty, but thought that these groups should be willing to pay for the privilege. Jerry Phelan, Recreational Director of Kenosha, says that Kenosha is getting out rules for regulating such conditions. Others report that certain areas, such as county-fair grounds, are used in their cities for commercialized picnics. The consensus is that these picnics should not be allowed to interfere with the rights of the public to use and enjoy the park in their own way. It has been suggested that a committee investigate the matter and draw up a policy for adoption at some future meeting.

What do other cities do?

M. G. SIMONDS,
Park Superintendent,
Green Bay, Wis.



In both wet and dry weather this Barrett-engineered pavement is lastingly skid-safe.

THE BARRETT COMPANY New York Chicago Birmingham St. Louis Detroit Philadelphia Boston Providence Lebanon Rochester Baltimore Minneapolis Cleveland Columbus Toledo Youngstown Syracuse Hartford Buffalo Cincinnati Bethlehem Portland, Me. Norwood, N.Y. In Canada: THE BARRETT COMPANY, LTD. Montreal Toronto Winnipeg Vancouver AMERICA'S LEADING MANUFACTURER OF COAL-TAR PRODUCTS · ROOFINGS · TARVIA · CHEMICALS

Mention THE AMERICAN CITY—it helps.

Rebuilding Atlanta

A Fifteen-Year Effort in Progress

THESE effective examples of publicity for slum elimination and better housing are from the first annual report of the Housing Authority of the City of Atlanta, Ga., of which C. F. Palmer is President and Philip Weltner Executive Director.

The report discloses the fact that prior to the inauguration of the rebuilding campaign there were within Atlanta's city limits 83,171 dwelling units, exclusive of dormitories, hotels and institutions, and that of these dwelling units 45,644, *or* 54.85 *per cent, were substandard and unfit for decent living:* those which "by reason of dilapidation, overcrowding, faulty arrangement or design, lack of ventilation, light or sanitation facilities, or any combination of these factors, are detrimental to safety, health or morals."

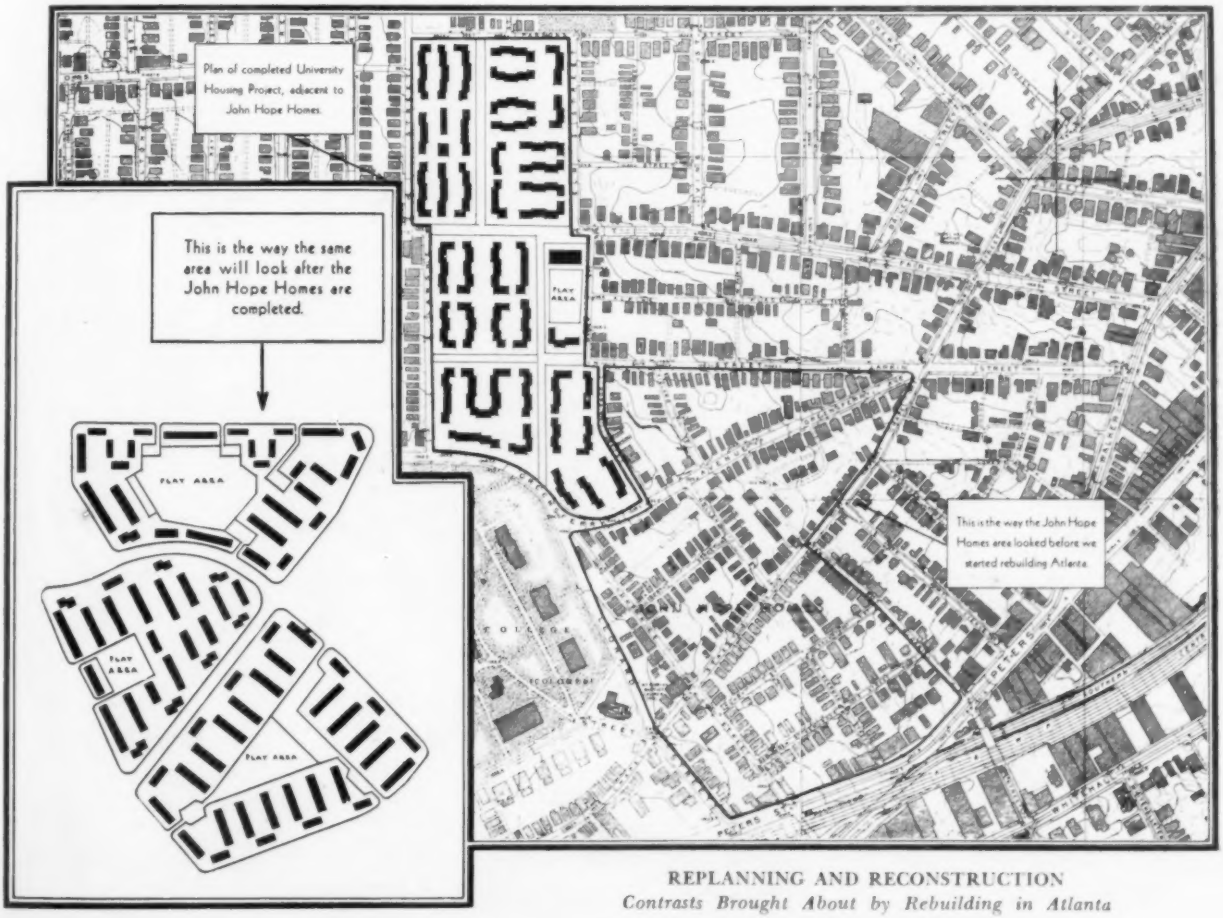
The Authority states that it is facing a fifteen-year effort. Four developments, completed or under way, will provide excellent shelter and neighborhood conditions for about 2,500 families, at practically the same rents as paid in the hovels previously occupied. One of these, the John Hope Homes, an extension of the University Housing Project, is presented here in effective contrasts from the Report, which states as a first principle:

"No individual is equal to the task of coping with the slum. Only the people collectively, through government, have the power to establish 'life, liberty and the pursuit of happiness' on the bedrock of reality."

To reinforce its own activities, the Housing Authority strongly recommends the enactment and enforcement of a modern housing code to apply to existing as well as future construction, and urges also that Atlanta "get going with better planning, so as to ease traffic flow, open up tightly congested centers and relieve the drab appearance of large segments of our city. The Planning Commission needs and should have greater facilities to perform its manifold duties."

DEMOLITION

All these houses in Atlanta are coming down as a result of ferreting out the facts and discovering where the shabbily housed really live. In the investigations the Authority actually came upon families living in basements on the bare dirt


Plan of completed University Housing Project, adjacent to John Hope Homes.
This is the way the same area will look after the John Hope Homes are completed.
FLAT AREA
FLAT AREA
FLAT AREA
FLAT AREA
This is the way the John Hope Homes area looked before we started rebuilding Atlanta.
COLLEGE
PEGGS

REPLANNING AND RECONSTRUCTION

Contrasts Brought About by Rebuilding in Atlanta

The TAPE that got me a $300,000 contract

"Yours is the low bid, Mr. Thompson," they told me . . . "so low that we hesitate to award you the job. Can you prove that you have figured the specifications correctly? We must reach a decision today."

I'd spent four days estimating the job, but I knew I wasn't licked. I sat down with their engineers, the blueprints and this tape...the record of every calculation we'd made at the office on our new Printing Calculator.

In two hours it was all over and I had the contract in my pocket. What a swell way to start off the year! . . . yet without this tape I'd have been out in the cold. I think I'll write Remington Rand a letter!

NOTE TO ECONOMY-MINDED CIVIC OFFICIALS

Maybe you awarded Mr. Thompson that $300,000 contract. Whether or no, this incident points out one priceless, exclusive feature of the new Printing Calculator: every factor in every problem is there on the tape, in black and white . . . a permanent record of each calculation. Inventory, plant and equipment depreciation, payrolls, auto and truck operations, checking invoices . . . these and other governmental accounting procedures are handled with speed and accuracy. The Printing Calculator can save you time and effort. See it in action . . . phone our nearest branch office today!

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Water Rates and Service Charges

1940—Part II

Covering Domestic and Industrial Meter Rates, Discounts and Penalties, Installation Charges, Fire Hydrant Rentals and Fire Sprinkler Costs

Birmingham, Mich.

Present population	11,000
Population served	11,000
Number of active services	3,000
" " meters	3,000
" " hydrants	516
Miles of water main	90

The water works and the sewage-disposal system in Birmingham are operated as one department. In Ordinance No. 236 the term "water rates" is defined as "the rates or prices to be charged for water, based upon the quantity of water consumed on any premises as measured by a water meter or estimated in cases where no meter is used." The term "sewage-disposal rates" is stated to mean "the rates or prices to be charged for the disposal of waste water and sewage from any premises through the sewers and sewage-disposal plant of the city." The water and sewage-disposal bills provided by this ordinance are not severable but must be paid as one bill. The City Manager may accept partial payments on water and sewage-disposal bills, provided that these payments are prorated over the water and sewage-disposal components of the bill in proportion to the amounts of each. Where the Department is notified either by the owner of a property or by the tenant, either directly or by the application for service, that the tenant is to be billed and will pay for water and sewage-disposal service, should this bill be not paid at the expiration of a 30-day period after the date of billing, and the water for any reason not be shut off, if requested by the owner, the Department within 15 days thereafter sends a notice of the delinquent bill to the owner of the affected property at his last known address.

The minimum charge for water in any quarter is for 6,000 gals. of water whether or not this quantity is registered by the meter, and this amount is furnished for the meter rentals, which are as follows, depending on the size of meter:

5/8" meter	$2.50
1" "	3.50
1¼" "	4.50
1½" "	5.50
2" "	6.50
For each additional 1,000 gals. over the min.	.20

These rates are subject to a discount of 10% if paid on or before the 15th of the month on which they become due. No discount is allowed after the 15th; and if the bill is not paid on or before the last day of the month, the water is shut off.

Water meters are furnished by the Department without advance charge and remain the property of the Department. For ordinary domestic consumption a 5/8" meter is furnished, but where application is made for a meter larger than 5/8", the Superintendent determines the proper size, and his decision is final. The use of meters larger than 2" is permitted only upon specific approval of the Superintendent. The expense of installing and maintaining the meters is borne by the Department provided that where replacements, repairs, or adjustments of the meters are necessary by the neglect or carelessness of the owner or occupant of the premises, the expense of repair or replacement is charged against and collected from the owner or occupant of the premises.

If a meter gets out of order and fails to register, the consumer is charged at the average quarterly consumption, as shown by the meter when registering. The accuracy of the meter on any premises is tested by the Department upon written request of the owner, who pays a fee of $1.00 in advance to cover the cost of the test. If the test shows the meter to register over 3% more than the water that actually passes through it, another meter is substituted for it and the fee of $1.00 refunded to the owner of the premises, and the water bill adjusted in such manner as is considered fair and just.

Before any connection is made to a water main or sewer, an application must be made in writing to the Water and Sewage Disposal Department by the owner of the premises to be served, or by his or her authorized agent, on blank forms provided by the Department. No connection is made until the applicant has paid the fee in accordance with the following schedules:

For 3/4" service	$40.00
" 1" "	47.50
" 1½" "	75.00
" 2" "	100.00
There is added to the above fees, as a street repair charge, the following:	
Graveled streets and strip pavement	$10.00
Gravel streets with tar or asphalt surface	15.00
Paved streets	20.00

Where the water main is located in an easement, the following fees are charged:

3/4" service	$25.00
1" "	32.50
1½" "	60.00
2" "	85.00

These fees are full payment for the service connection to the property line, including the stop and stop box, and in the case of easements include the stop and stop box at the easement line. The Department requires the owner to provide the extension of the service to the building prior to the installation of the service by the Department.

There is no charge for the installation and maintenance of public fire hydrants nor for connections for automatic sprinkler heads for private fire protection.

Bills for sewage-disposal service are levied on each lot or parcel of land, building or premises having any sewer connection to either the storm or sanitary sewers of the city; provided, however, that no double charge is made where there are connections to both storm and sanitary sewers. Sewage-disposal bills are rendered with the water bills and made payable at the same time and under the same conditions as the water bills. The rates charged for sewage-disposal service are one-half the amount billed for water, except that the amounts billed against each property on the first day of July, August, September, October, November or December are one-half of the amount of the water billed against the property on the first day of the sixth month prior to the date of billing. If the bill for water and sewage disposal is not paid within 30 days, water service to this premises may be shut off and the unpaid bills for both water and sewage disposal become a lien against the premises.

D. C. Egbert,
City Manager.

Danville, Pa.

Present population	7,100
Population served	7,500
Number of active services	1,600
" " meters	60
" " hydrants	128
Miles of water main	10

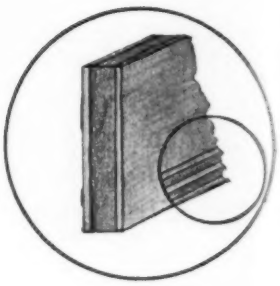
The minimum annual charge for water delivered to consumers through meters in Danville, Pa., is $12. The rates for water used less than 100,000 gals. per year is 20c per 1,000 gals., and over 100,000 gals. is 15c per 1,000 gals.

All applications for service must be made by the party wishing to use the water, and always with the consent of the owner of the premises. The owner is held responsible for water used on his premises.

The supply of water is shut off for the non-payment of bills or violation of the

SERVICISED QUALITY PRODUCTS

Specify Servicised for Quality

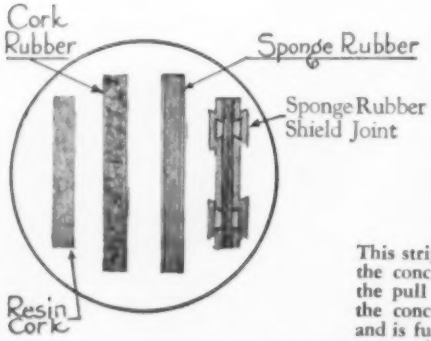


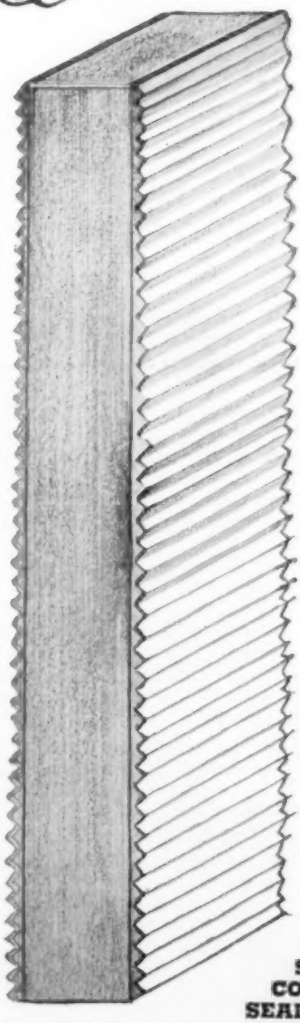
SERVICISED FIBER JOINT

Our trade-marked SERVICISED Fiber joint is distinct from the Standard Fiber joint, in that the waterproof material is evenly distributed. Stickiness, so apparent in ordinary types, is overcome without destroying the waterproofness of the joint. Lack of stickiness aids in re-expansion and resists much less the back pull of the joint caused by suction of the sides of the joint to the concrete walls. Specify SERVICISED Fiber Joint.

SEALING COMPOUNDS

Sealing Compounds for filling in crevices are made and prepared in strip form, furnished on reels ready for immediate use. Where liquid fillers are required in the cold state, five-gallon pails are furnished containing such liquid. Any sealing problem is a "SERVICISED" problem, and we are prepared to meet each and every one.





SERVICISED CORRUGATED SEALING STRIP

This strip has a vertical series of corrugations against which the concrete is poured, and suction cannot operate unless the pull is directly against the interfering corrugations of the concrete itself. This strip is prepared in any length and is furnished on reels or as a crown for expansion joints prepared for installation. The rubber is of anti-oxidant type to resist deterioration. Also furnished for installation in a manner to provide a shoulder below which the strip cannot be depressed.

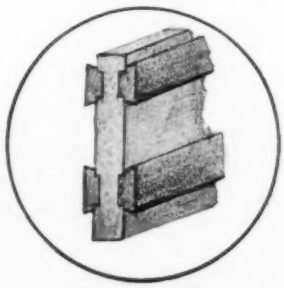
Write for full particulars and specify "SERVICISED" Corrugated Sealing Strip.

SERVICISED IMPROVED ASPHALT JOINT

This Asphalt joint has 10% greater re-expansion, and its oozing tendency is controlled 25% better, than the ordinary asphalt joint. To further control any mushrooming at the surface, this same joint upon specification may have a strip of corrugated sponge rubber extend one inch from the top on either side of the joint and this same strip can be placed on the bottom of the joint when so specified. The cost of the joint varies, whether without the strip at the top, or the stripping at the top and bottom or the strip on one edge alone. Specify "SERVICISED" Improved Asphalt Joint.

PULL TEST ON SERVICISED CORRUGATED SEALING STRIP

Preliminary tests on this new Sealing Strip indicate a 75-lb. resistance as against a 13-lb. resistance on a rubber sealing strip with smooth sides. We are of the opinion that the resistance can be brought to a ratio of 110 lbs. to 13 lbs. as against other sealing strips.



SEVICISED SELF-ADJUSTING JOINT

We believe this joint functions 100% for the following reasons:

1. The Asphalt ribs on the Self-Adjusting joint contact when the water seal is most important.
2. The Asphalt rib enables the product to fill the opening 100% at all times.
3. Compression intensifies resistance to inflow of moisture.
4. Recovery is aided by mechanical means ever-present and ever-functioning.
5. Uniform impregnation of the fiber with a non-sticky waterproofing material prevents adhesion of the fiber structure upon compacting.
6. Much less breakage due to handling because of reinforcement of asphalt ribs.

SERVICISED PRODUCTS CORP. • 6051 W. 65th ST. • CHICAGO

rules; and when it is so shut off, the sum of $1.00 must be paid, in addition to all arrears, before the water is turned on again.

LE ROY DEITRICK,
Superintendent, Water Department.

Auburn, Mass.

Present population	6,500
Population served	2,500
Number of active services	600
" " meters	600
" " hydrants	61
Miles of water main	15

All lines served by the Auburn Water Co. are equipped with meters, except in a few circumstances which make it impractical to do so. The meter rates are payable quarterly, on the first day of January, April, July and October, for water used, and other bills are payable 30 days following their contraction. If bills remain unpaid for 15 days after they become due, a 10-day notice of shut-off is sent to the owner, and the water may be shut off at the expiration of the 10-day notice. After water is shut off for nonpayment of bills, the bill must be paid in full together with $1.00 for shutting off, and $1.00 for turning on the service before the water will be turned on again. The schedule of rates is as follows:

	Allowance Per Quarter	Minimum Charge per Quarter
Dwelling houses, per tenement	6,750 gals.	$6.00
Store	3,000 "	2.50
Stable	10,000 "	6.25
Garage	4,000 "	3.00

Water used above the quarterly allowance is billed as follows for 6-month periods:

First	25,000 gals.	$ .50	per 1,000 gals.
Second	25,000 "	.45	" " "
Third	25,000 "	.42½	" " "
Fourth	25,000 "	.40	" " "
Fifth	25,000 "	.37½	" " "
Sixth	25,000 "	.35	" " "
Seventh	25,000 "	.32½	" " "

All in excess of 175,000 gals. is billed at 30 cents per 1,000 gals.

If a meter gets out of order and fails to register, the consumer is charged at the average daily consumption as shown by the meter when in order. If the meter is put in at the time that the service is installed, the consumer is billed $12; or if installed later, there is a blanket charge of $14 for the meter, small fittings, and labor of installation. Meters may be returned to the company when the service is discontinued, and a credit of $12 is given if the meter is in good condition. If repairs are necessary, they are made and the cost is deducted from the amount credited.

Applications for service are made at the office of the company on blank forms and must be signed by the owner of the premises to be supplied, or by his authorized agent. The company lays the service pipe from the street main to and through the cellar or basement wall and provides a stop waste valve and meter at the end of the pipe. The owner pays for the portion of the service pipe that is laid beyond the line of the street, together with the cost of installing the stop waste valve and meter.

When water has been shut off for violation of the company's rules, or for nonpayment of bills, water is turned on only after the Superintendent is satisfied that there will be no further cause for complaint and the consumer has paid $1.00 for shutting off and $1.00 for turning on the water.

Rates from sprinkler heads for private fire protection are 5c each per year, with a minimum charge of $50.

NICHOLAS CIABURRI,
Superintendent, Auburn Water Co.

Borough of Steelton, Pa.

Present population	13,000
Population served	13,000
Number of active services	2,746
" " meters	2,746
" " hydrants	155
Miles of water main	26

The domestic water rate for the borough of Steelton is $10 per year, for which 40,000 gals. of water is furnished. The industrial rate starts at 25c per 1,000 gals., with a sliding scale down to 12c per 1,000 gals.

When a new service is desired, the owner's plumber applies for a permit to install the new water tap, for which the charge is $5.50 for a ½" tap; 6.75 for a ¾" tap, and $10.80 for a 1" tap. The Water Department taps the main only, and then the plumber lays the service line. The charge for a new meter is $10, which is paid by the property owner to the Water Department.

There are no hydrant rentals charged in the borough for public fire hydrants, but outside borough limits the charge is $35 each per year. There are no charges for sprinkler heads for private fire protection.

CLAUDE W. BASKIN,
Superintendent, Water and Highway Department.

Southington, Conn.

Present population	9,237
Population served	9,100
Number of active services	1,892
" " meters	496
" " hydrants	219
Miles of water main	47 485

The water rates in Southington are payable quarterly as follows:

First	5,000 cu. ft.	$ .22	per 100 cu. ft.
Next	10,000 " "	.12	" " " "
"	85,000 " "	.085	" " " "
All over	100,000 " "	.06	" " " "

The minimum charge for water in any one quarter is $3.00, which includes rent of ⅝" meter. A discount of 2½% is allowed on bills paid within 15 days from the date of the bill.

The quarterly meter rental charge, based on the size of the meter, and for which no water is furnished, is:

⅝" meter	$ .50
¾" "	.70
1" "	.90
1¼" "	1.20
1½" "	1.50
2" "	2.50
3" "	5.00
4" "	10.00

The charge made when application is made for a new service, which includes installation to the curb line, is $20 for a ⅝" corporation cock and 1" copper tubing. The charge is $22 for a ¾" corporation cock and 1¼" galvanized service pipe, or 1" copper tubing.

Fire protection rates for hydrants, standpipes and automatic sprinkler installations are billed semi-annually in advance as follows:

Fire hydrants	$5.00	each per 6 months
¾" to 1" standpipes	.50	" " "
1¼" to 2" " "	1.00	" " "
Automatic sprinkler heads	.01	" " "

If paid within 15 days from date of bill, 5% discount is allowed.

S. W. BOWERS,
Superintendent, Water Department.

Parsons, Kans.

Present population	14,368
Population served	13,000
Number of active services	4,036
" " meters	4,036
" " hydrants	211
Miles of water main	50½

All consumers within the city limits of Parsons, Kans., pay the following rates for water consumed:

Domestic Consumers

First	5,000 gals. per month	$ .40	per 1,000 gals.
Next	5,000 " " "	.35	" " "
"	5,000 " " "	.30	" " "
All over	15,000 " " "	.25	" " "
Minimum charge		.50	per month

Industrial and Business Consumers

1,000 gals. or less per day	$ .40	per 1,000 gals.
1,000 to 2,500 gals. per day	.35	" " "
2,500 " 5,000 " " "	.27	" " "
5,000 " 10,000 " " "	.22	" " "
10,000 " 25,000 " " "	.19	" " "
25,000 " 50,000 " " "	.16	" " "
All over 50,000 " " "	.135	" " "
Minimum charge	.50	" month

The summer rates for July, August and September readings, when a large amount of water is used for irrigation purposes, are 40c per 1,000 gals. for the first 5,000 gals. within these months, and 20c per 1,000 gals. for all over 5,000 gals. per month.

Consumers outside the city limits of Parsons pay the same rates as consumers inside the city limits, except a $1.00 minimum instead of 50 cents. Special rates are also provided for industries, schools, churches and state institutions.

To make an application for a new water service, it is necessary for the consumer to call at the Water Office and sign a special application blank, specifying the name of the plumber who is to do the work. The plumber runs the water line from the main and makes the connections for the water meter. A lead service is required from the main to the curb. The Water Department makes the tap for the plumber and sets the meter. A charge of $15 is made for a new service, for which the Water Department furnishes the water meter, curb stop, meter box and lid.

There is a charge of $75 per year to the city for each public fire hydrant. There is no charge made for sprinkler heads installed for private fire protection.

IRA WHITE,
Superintendent, Water Works Department.

Any one of these meter parts will absolutely fit any Model H.F.$\frac{5}{8}$" Hersey Water Meter, due to careful workmanship, best raw materials, and correct engineering principles, backed by that traditional New England ambition to make a product a little better than necessary. For more than half a century Hersey Water Meters have held their wide popularity in the Water Works field.

HERSEY MANUFACTURING COMPANY

SOUTH BOSTON, MASS.

BRANCH OFFICES: NEW YORK — PORTLAND, ORE. — PHILADELPHIA — ATLANTA — DALLAS — CHICAGO — SAN FRANCISCO — LOS ANGELES

Winchester, Va.

Present population	12,500
Population served	13,400
Number of active services	2,843
" " meters	3,043
" " hydrants	183
Miles of water main	38

The water rates for Winchester are 7½c per 1,000 gals. within the corporate limits, and 15c per 1,000 gals. to consumers outside the corporate limits of the city. Bills for metered service are payable on the 1st of the month following the quarter for which the water was supplied. The City Treasurer then issues to the Water Department, 60 days after the water bills are due, a list of the premises on which water bills are delinquent. The Water Department then turns off the water from these premises and does not turn it on again until the bill, plus a fee of 50c to cover the cost of turning the water on, has been paid. However, water is never turned off without first notifying the occupant of the premises.

A service charge is made for each meter installed in accordance with the size of the meter as follows:

		Per Quarter
⅝" or 1" meter	for domestic purposes	$1.50
1"	" " commercial use	4.50
1½"	"	7.50
2"	"	12.50
3"	"	20.00
4"	"	30.00
6"	"	50.00

Consumers who feel they are overcharged through incorrect registration of the meter may have the meter tested upon payment of a fee of $1.00 to the City Treasurer. If the meter is found to be over-registering, the fee is returned, but if the meter is correct or under-registering, the fee is credited to the Water Department to cover the cost of the test.

S. L. GRANT,
Superintendent, Water Department.

Norwich, Conn.

Present population	33,000
Population served	28,000
Number of active services	5,642
" " meters	3,382
" " hydrants	639
Miles of water main	90

The meter rates in Norwich, Conn., are as follows:

First	1,000 cu. ft.	$2.50 per quarter
1,000 to 5,000	" "	2.50 per 1,000 cu. ft.
5,000 " 50,000	" "	1.10 " " " "
Over 50,000	" "	.60 " " " "

The water rates for Norwich, Conn., are uniformly 30c per 1,000 gals. for all water used by domestic or industrial consumers. Water bills are due and payable quarterly, starting January 1. If they are not paid in 20 days, an additional 5% is added, and then if not paid in 30 days, 10% is added. A due notice is sent at the end of 30 days, and then water is shut off after 15 days from that date and is not turned on again until all bills are paid. Owners of property are responsible for all bills on property from which they collect rents.

The Board of Water Commissioners installs services without cost within the city limits, and those laid outside city limits are at the cost of the applicant as far as his property line, where the water-works curb stop is located.

The Board of Water Commissioners receives a uniform sum of $150 for the installation of each hydrant. The rentals thereafter are $50 per hydrant per year.

EARL D. KRAMER,
Supervisor, Board of Water Commissioners.

Penn Yan, N. Y.

Present population	5,300
Population served	5,600
Number of active services	1,690
" " meters	1,762
" " hydrants	139
Miles of water main	16

For all water used from 1 gal. to 50,000 gals. in Penn Yan, N. Y., the rate is 25c per 1,000 gals., with variable discounts for payments within 10 days of the date of rendering the bill. These discounts run from 5% for 1 to 5,000 gals., up to 52½% for 50,000 gals. The rate for water consumed quarterly above 50,000 gals. is 10c per 1,000 gals., with a 5% discount for cash payments within 10 days. These rates apply to all classes of consumers, and bills are rendered January, April, July and October.

The consumer is required to install the water service under the supervision of the Water Department. There are no hydrant rentals for either public or private hydrants, nor are there any charges for sprinkler heads used for private fire protection.

H. W. PERRY,
Superintendent, Penn Yan Municipal Board.

Rushville, Ind.

Present population	5,709
Population served	5,709
Number of active services	1,571
" " meters	1,571
" " hydrants	165
Miles of water main	17

The water rates of the City Water, Light and Power Plant of Rushville are:

First	1,000 cu. ft. per month	$2.00
Next	1,000 " " " "	1.75
"	1,600 " " " "	1.50
"	1,600 " " " "	1.25
"	1,600 " " " "	1.00
All over 6,800 cu. ft. per month		75c per 1,000 cu. ft.

The minimum charge per month for any service is 65c, and the charges for churches and schools are at the rate of $1.00 per 1,000 cu. ft. per month.

Bills are due and payable on the first day of the month following the billing period, and are delinquent after the 10th. Services may be disconnected 10 days after bills become delinquent, and service is not renewed until a charge of $1.00 is paid by the consumer, together with all bills and charges in arrears.

Services up to and including the curb cock just inside the curb line are furnished and installed by the municipal utility. The meters are also installed by the utility after the consumer has furnished a proper place for the installation. The consumer is charged with the actual cost of making the installation.

The rental charge for fire hydrants is $40 per year per hydrant. The charge for private fire service lines for use with fire hose or with automatic sprinkler systems is $6.25 per quarter, payable in advance.

C. S. BROOKS,
Bookkeeper, City Water, Light and Power Plant.

Radford, Va.

Present population	8,000
Population served	8,000
Number of active services	1,298
" " meters	1,250
" " hydrants	110
Miles of water main	75

The minimum charge for water per month in Radford is $1.00. The charge for water used for domestic service is as follows:

First	2,000 gals.	$ .50	per 1,000 gals.
Next	3,000 "	.35	" " "
"	5,000 "	.30	" " "
"	10,000 "	.25	" " "
"	30,000 "	.20	" " "
All over	50,000 "	.15	" " "

The commercial rates are as follows:

First	15,000 gals.	$ .25	per 1,000 gals.
Next	20,000 "	.20	" " "
"	65,000 "	.15	" " "
"	100,000 "	.125	" " "
All over	200,000 "	.10	" " "

When an application is made for water service, the customer must pay a $5.00 connection fee, and then the city furnishes the line free to the property line of the customer.

There is no charge for either public or private hydrants, nor for sprinkler head installations for private fire protection.

S. T. ROBERTS,
City Manager.

Hastings, Mich.

Present population	5,132
Population served	4,600
Number of active services	1,980
" " meters	1,890
" " hydrants	87
Miles of water main	21½

The water rates for metered service in Hastings, Mich., are:

First	3,000 cu. ft.	$1.50	per 1,000 cu. ft.
Next	7,000 " "	1.12	" " " "
All over	10,000 " "	.90	" " " "

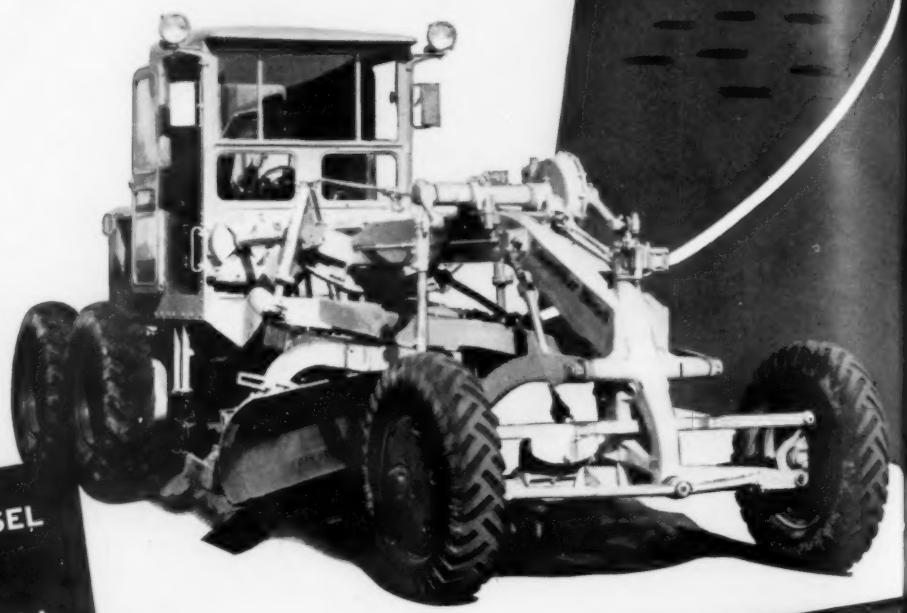
The minimum charge per quarter is $1.50, and a 10% discount is allowed on the bill if it is paid on or before the 15th of the month in which the bill is rendered. Water users may own their meters by paying the city the cost of the meter, together with any expense the city may have incurred for setting the meter, less 40% of all amounts paid as rental.

Application for connection to the city water system is made on a special blank, containing a diagram showing the location of the property and the size of taps, size of lead pipe, weight of pipe, number of service boxes, and certain dimensions necessary to the installation. The charge for the installation of a water service is $12 for a ¾" service. For any size larger, the work is done at cost of materials and labor.

There is no charge for hydrant rentals, nor for sprinkler installations used for fire protection.

BERT SPARKS,
City Engineer.

HERE'S THE SPRING OUTFIT FOR YOUR STREETS!



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Forward Steps

Reported by Municipal Officials, Chamber of Commerce Executives, and Others

Boulevard Island Shrubbery Trimmed for Greater Safety and Beauty

SCHENECTADY, N. Y.—Shrubbery and trees on boulevard islands in this city have grown so thick and tall as to become a menace to safety. Children, playing on the islands and darting onto the street from the shrubbery where they were obscured from view, have had serious accidents. In some cases, adult pedestrians, going from one side of the street to the other, across the islands, have not been seen by motorists because the growth has become so tall. Shrubbery and bushes have been particularly dangerous near the ends of the islands where they hide stop and caution signs, and obscure cars from view—from each other and from pedestrians. In some places—as for example in the left-hand view reproduced—the shrubbery has even hidden street lights, thus darkening the street to the point of danger. Requests for an improvement of the situation have come from many organizations and individuals.

In view of all this, the Director of Traffic and City Planning, Fred Fisch, and the Director of Parks and Recreation, F. H. Marvin, have started a program of trimming and replanting the shrubs and trees on the city parkways. All but the lowest plants are being taken out or cut back for 25 to 30 feet, at the ends of the islands. No massive growth will be permitted, low bushes and trees will be substituted for tall ones, plantings will be spread out, and low branches on magnolia trees will be cut away, so that children can be seen playing on the islands and there will be visibility from one side of the street to the other across the islands. It is expected not only that the program will greatly reduce traffic hazards, but that the parkways will be made more beautiful by better planting arrangement.

The city is cooperating with property owners on streets where the project is being undertaken. They are interviewed and advised as to what plans are being made for their blocks.

The illustration to the right shows a block on which the improvements have been carried out. Light from street lamps and visibility across the islands are unobstructed.

ARTHUR W. CHADWICK.

Neglected Area Transformed into Wooded Park

SALAMANCA, N. Y.—A one-time popular driving park in this city, neglected for years, had become nothing but an eyesore. It had grown up to brush; part of it had even been used as a dump. Now it is a wooded park, which may become a site for a new city hospital.

Transformation of the area was accomplished by National Youth Administration labor, working for two seasons, and with the cooperation of the Public Works and City Parks Departments. Five thousand evergreens, hard maples, elms and small-leafed trees have been planted; margins have been plowed up for fire protection.

After the city acquired tax title to the driving park ground, in 1937, at the request of the Hospital Commission, it was dedicated as a site for a possible future hospital.

A. J. MARONEY,
Superintendent of Parks.

State Board Aids Local City Planning

JACKSON, MISS.—The Mississippi State Planning Commission has begun a state-wide program for city planning. It has exercised the authority granted in the Laws of 1936 by sponsoring basic city surveys jointly with fourteen cities in all parts of the state.

The need of city surveys and city planning in Mississippi has been a serious one. Contact with various municipalities by the State Planning Commission in its program of housing and other activities revealed that the lack of city planning and zoning was frequently due to the cost to the municipalities of obtaining basic city surveys.

In January, 1939, the cities of Meridian, Laurel and Greenwood requested the Mississippi State Planning Commission to sponsor a project for the purpose of collecting and compiling data concerning the existing land uses, tax assessments, utilities, health conditions, social conditions and economic conditions in those cities. It was the general belief of these three cities that, in order to adopt sound city plans and zoning ordinances, they must first get a broad understanding of their existing conditions.

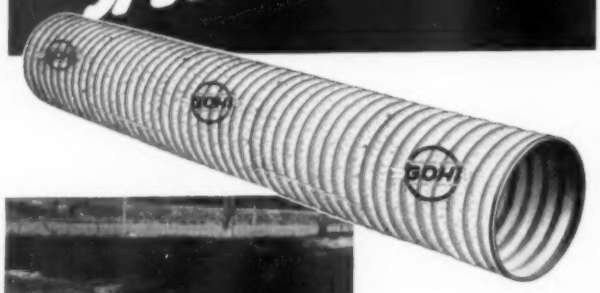
Consequently, the State Planning Commission submitted an application with the Works Progress Administration for a general basic city survey in Meridian, Laurel and Greenwood. An original WPA grant of $23,000 was obtained for these surveys. This work was begun in May, 1939, and a considerable portion of the survey was completed by December, 1939.

There was a widespread demand

BEFORE AND AFTER TRIMMING AND REPLANTING SCHENECTADY'S BOULEVARD ISLANDS

At left, shrubbery hides pedestrians, street signs, lights and other cars, from motorists. At right, greater safety with clear view for motorists

LOOK UNDER THE SPELTER COATING



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St. Paul Corrugating Co. St. Paul, Minn.
The Newport Culvert Co. Newport, Ky.

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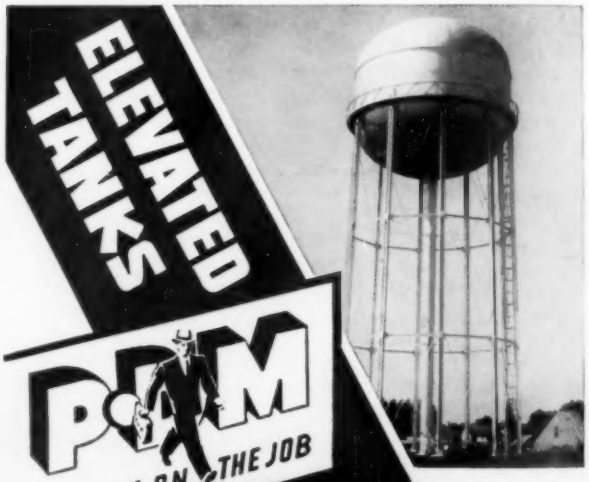

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from other municipalities for the same service. Thereupon, the State Planning Commission provided other municipalities in the state with an opportunity to cooperate in a superseding project. This project was filed with the WPA and approved by it in November, 1939, for surveys in fourteen municipalities: Biloxi, Clarksdale, Crystal Springs, Greenwood, Grenada, Gulfport, Laurel, Lexington, Louisville, McComb, Meridian, Oxford, Picayune and Port Gibson. Most of this work will be completed during the year 1940.

This project is the first of its kind in the nation and so attracted the attention of the National Resources Planning Board and the Work Projects Administration that officials were sent from Washington to confer with the Planning Commission on the project and to assist in standardizing the working procedures for use in similar projects throughout the nation.

Planning Follows Fact-Finding

At the beginning of this program, the primary planning effort was to get at the facts. More recently there has been a gradual transition from the purely fact-finding stage to the planning stage. When the superseding Basic City Survey was sponsored, most of the sponsor cities pledged definite sums of money in cash for technical services. Among those cities in the population class of more than 10,000, three cities pledged $100 per month each for six months. One city with barely 10,000 pledged $75 monthly, while each of the smaller cities pledged $50 monthly for six months. Since the cities are clamoring for the surveys and are anxious to begin them, there has so far been no difficulty in securing the cash from these cities.

It is estimated that during the next four years no less than thirty municipalities in Mississippi will cooperate in this essential program of planning, zoning and long-range development.

L. J. FOLSE,
Executive Director, Mississippi State Planning Commission.

Photo Contest Sponsored by Union County Park Commission

UNION COUNTY, N. J.—The Fifth Annual Amateur Photo Contest, Winter Scenes Division, sponsored by The Union County (N. J.) Park Commission, is now under way, having started January 1 and scheduled to end March 15.

Such competitions were first started in 1936 because the Park Commission felt that this was a hobby worthy of support—one which would help entice people into the healthy out-of-doors and keep them happily occupied.

The competition proved most successful, and has been continued as an annual event. In fact, in 1938, the Park Commission began to conduct two competitions each year, one being a division for winter scenes and the other for summer scenes.

Originally, awards consisted of gold, silver, and bronze medals, in addition to which winners received coupons giving free admission to swimming, tennis, golf, boating and horseback riding facilities. During the present competition, however, the contestants are being offered $173.50 worth of photographic merchandise, donated by local photo supply houses and national manufacturers.

The competition is open to county residents, with no age requirements, and all photos must be taken within the county.

Entries are permitted in four classes —scenes, activity, human interest, and nature and wild life. Six awards are made in each class, with a special award for the one best photo taken in the Union County Park System, regardless of the class in which it is entered.

As the competition is designed primarily to encourage the taking of pictures, contestants are not required to do their own developing and printing, although this is permitted. In fact, the announcement of the competition states that judging will be primarily on the basis of general appeal and not photographic technique.

All except prize-winning prints are to be returned to contestants if accompanied by return postage, although in previous competitions all entries were retained by the Park Commission.

A by-product of the very first competition conducted by the Park Commission was the organization of a Union County Camera Club, which

Left—First prize won by Arthur E. Starks, in the Class A, Winter Landscapes Division of the Annual Amateur Photo Contest held by The Union County (N. J.) Park Commission: Echo Lake Park after a Snowstorm. Below—First prize won by M. A. C. Johnson, in the Class B, Winter Activity Division of the Contests: Tobogganists Riding Down a Slide

THE VAN DORN STREET SWEEPER is different!

Here's an entirely new plan for disposing of street sweepings that will lower your street cleaning costs

Street dirt, leaves and trash are swept into containers inside the all-metal body. When filled, the containers are removed and left on the curb for the regular garbage collection crew to handle.

The advantages of this *sweeper and relay can system* are apparent to all who know the problems of street cleaning.

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It will tell you about other important features of this money-saving street sweeper.

No piles of sweepings left in the gutters, to blow about and cancel out the work just done by the sweeper.

No men needed to shovel those piles into trucks for hauling away to the dumps.

No need for the sweeper itself to take time out from sweeping for a trip to the dump.

All the time can be spent in sweeping.

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meets twice monthly in the Commission's Administration Building, Warinanco Park, Elizabeth. As with many by-products, the club has outgrown the photo-contest in importance. It now has a paid membership of 60, and arranges for many interesting and instructive lectures, demonstrations and competitions each year.

W. R. TRACY,
Engineer and Secretary, The Union County Park Commission.

Forum Meeting Presents Points of View of Many City Interests

LA CROSSE, WIS.—The Chamber of Commerce in La Crosse recently held a community Forum Meeting, at which speakers representing six different interests of the community—retail, industry, medicine, education, library and taxation—talked for ten minutes each on "The Future of La Crosse as I See It." Each speaker discussed the progress, problems and needs in his field, and analyzed from his point of view what has been done, is being done and can be done in the future, for the best development of the city. The necessity for cooperation among the various interests was stressed.

Discussers suggested means for making the community even more of a medical center than it is; explained the inadequacy of, and the great need for, library facilities; pointed out the reasons for the recent large school construction program; showed that increased taxes have been necessarily due to increased services demanded by the taxpayers, and that "one way of overcoming tax problems is to overcome the attitude of indifference on the part of the average taxpayer."

Albert J. Bates, representing industry, pointed out that some people have a misconception of the Chamber of Commerce, and decried the theory that the Chamber is a tool of industry. Quoting him:

"The Chamber of Commerce is the focal point where civic ideas may be assembled and from which should radiate well-planned and soundly directed efforts which are designed to promote the best interests of the community. It should serve as a clearing house or a place where the problems affecting the welfare of a community can be brought out, discussed and analyzed constructively.

". . . Industry must not assume that it knows all the answers, labor must not assume a dictatorial attitude, transportation groups must not assume an independent viewpoint if the best interests of the community as a whole are to be served.

"Industry wants to operate with reasonable profit, labor wants to be well paid, transportation services want materials to move at profitable rates, but the success of each one is definitely dependent upon a high degree of cooperation with the others. Through cooperation, a common ground can be found that will serve to the mutual advantage of all interests."

HUGH G. CORBETT,
Secretary, La Crosse Chamber of Commerce.

While Some Real Estate Men Demand Tax Relief

TAX BURDEN NOW MAJOR REALTY PROBLEM

Real estate brokers look upon the tax burden as their major problem which they get relief from.

Brokers Expect to Be Busier This Year, But Call for Lower Valuations

production and distribution of vantages to offer because of its loca-

Overtaxation Evil Assailed By Wheelock

Realty Leader Declares Local Levies Keep City Space Market at Ebb

Crisis Is Seen Near in City's Tax Situation

Grimm Says 'Breaking Point' Must Be at Hand in 'Outrageous' Set-Up

The seven headings here reproduced are all from the Real Estate Sections of the January 28, 1940, issues of The New York Times (light-face type) and of the New York Herald Tribune (bold-face type)

Others Proclaim the Benefits of Public Spending

Meenan Urges Improvements For West Side

Welcomes School Project, Hopes 'El' Will Vanish; Calls for Construction

By John J. Meenan
President, John J. Meenan, Inc.

The future of the West Side as a high-class residential area lies solely in a concentrated practical program

PUBLIC WORKS AID GROWTH OF QUEENS

New Airport, Subways, Highways, Tunnel and Bridges Help to Draw Residents

CENTER OF AIR TRAVEL

La Guardia Field Has Brought 800 More Families, Says Realty Official

BronxProgram On Waterways Boon to Realty

Progress on Improvements Will Increase Value of Adjacent Industrial Area

Satisfactory progress is being made in the improvement of waterways within and adjacent to the Bronx, and completion of projects now under way or contemplated should result in an upswing in industrial realty in the area adjoining the waterways, according to a re-

BRONX INDUSTRIES STEADILY GROWING

Report Reveals Progress in Many Business Activities Since 1935

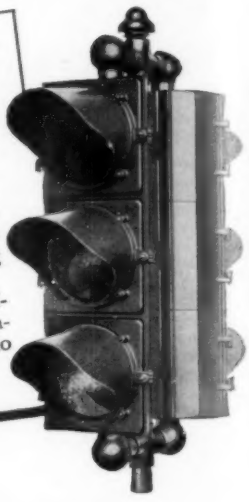
WATERWAYS ARE IMPROVED

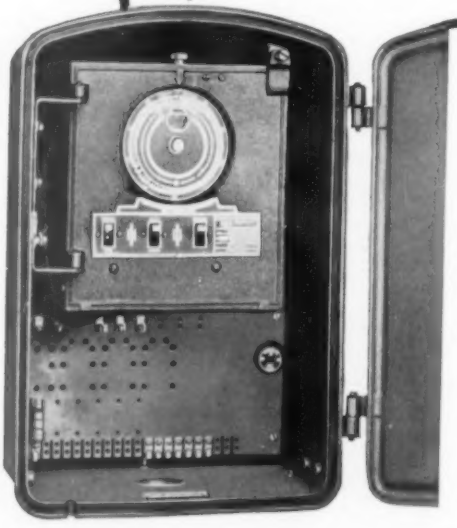
Hunts Point District Along East River Is the Chief Industrial Center

82 Places to Get "Plus-Value" Service on General Electric Traffic Signals

When you want the most convenient service on the most popular systems of traffic signal control . . . the General Electric Novalux Signals, for example, or Horni equipment . . . just call your local GRAYBAR representative. You'll get the *combined* experience of traffic control specialists meeting puzzling traffic situations from coast to coast, with the "plus value" of a local supply source furnishing *all* the equipment, tools and accessory supplies you need for completing the installation.

Whether your present system of traffic control calls for modernization, extension or replacement . . . it will pay you to put it up to GRAYBAR.





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GraybaR ELECTRIC COMPANY

Here's a unit that cuts *costs* as well as complaints of unnecessary delay . . . ideally adapted to cross-road intersections with open thoroughfares; building, yard and fire house exits, or wherever traffic flow in one direction is intermittent.

Current consumption and lamp costs are cut because signal lights are energized *only* as cross traffic approaches main thoroughfare. Then mechanical or magnetic detection unit begins control cycle with *Green* on thoroughfare, *Red* on cross traffic. After a predetermined time interval, control cycle continues, showing *Green* to cross streets, etc. On completion of the full cycle, however, signal lights *go off* unless another vehicle has reached cross-road detection point.

PUBLIC SAFETY EQUIPMENT DISTRIBUTED BY GRAYBAR

GENERAL ELECTRIC STREET LIGHTING	G.E. AND HORNI TRAFFIC SIGNALS	KARPARK PARKING METERS	WESTERN ELECTRIC POLICE RADIO	HORNI FIRE ALARM EQUIPMENT

When you write for that catalog, kindly mention THE AMERICAN CITY.

Modern Transit Can Reduce Congestion

By Harry C. Koch
Associate Traffic Engineer,
Detroit, Mich.

A PERSON walking occupies about 10 square feet of street space. A moving automobile, including margins around it for safety, occupies 27 times that amount of space, or 135 square feet per passenger.

In a street car, a passenger occupies about the same area as a pedestrian. If a given number of persons formerly riding street cars or walking are transported in individual automobiles, 13½ times as much street space is required. This tendency has been sufficient to congest many streets and discourage further development of abutting land. It has, in the larger cities, decreased the large daytime populations of concentrated areas.

Plans for Relief

Plans to relieve congestion usually contemplate wider streets. The planner's bands of traffic flow have the inconvenient habit of being widest in the widest streets. This explains the tremendous costs of providing motorways within cities. The general benefit of expensive widenings has been questioned. Abutting land is often adversely affected, since its prosperity is dependent upon the provision of parking, which for a number of reasons is not always made.

Ideal Business District Traffic

The traffic problem in central business districts is not caused by pedestrians—the people who put the business into business districts. We must have pedestrians—who after all use only 10 square feet of space apiece. Theoretically at least, we could do without the automobilists and their preemption of 135 square feet of street each. The traffic problem would be tremendously relieved if passenger automobiles were excluded from the business district and from the arterial approaches. This Utopian solution being impossible at the present stage of traffic control, the alternative is to provide wisely for orderly use of space—prohibition of street parking in heavy pedestrian areas, provision of parking lots and garages wherever possible and under whatever ownership, to accommodate the long-time parker, especially for business men and their employees.

Get the Motorist into a Coach

Traffic counts show heavy increases of flow of passenger cars during morning and evening rush hours. Origin and destination studies show a parallelism of routing of individual units and mass carriers. It is obvious, therefore, that an appreciable percentage of passenger-car use is for the single purpose of travel to and from work. This percentage measures the difference between congestion and freedom of movement.

Some of this travel begins and ends within the city. It should be converted into mass travel. This can be accomplished only through voluntary action of the motorists themselves. They must be provided with a public-carrier ride to and from work which is faster, cheaper, safer and *more convenient* than that possible under conditions of congestion and the use of automobiles.

W. R. Burns, President of the Dallas Railway & Terminal Co. (left), and L. T. Blaisdell, Commercial Vice-President of the General Electric Co., inspecting the first diesel-electric coach to be put in regular operation west of the Mississippi River. Eight of these modern Mack-General Electric buses were placed in service in December, 1939, on the Love Field line in Dallas, Texas

Before the advent of the automobile, it was a simpler matter to grant franchises to operating companies at no expense to the taxpayer for the purpose of furnishing rides to the citizens. These franchises have lost some of the appearance of value. Inroads in revenue, difficult operating factors, interferences and congestion, have reduced many private operating companies to receiverships. While the competition of individual vehicles has contributed to this condition, the reduction of service—either compulsory or to effect economies—has further reduced the attractiveness of the service until mass transportation in many communities is dangerously unsatisfactory.

Scale Models of Earlier Types of San Francisco Street Cars, Left to Right: Steam Dummy, 1860; Horse Car, 1865; Balloon Car, 1871; First Cable Car, 1873; Cable Car, 1883; Electric Car, 1894

The situation inspired the writer in the March issue of The American City, 1939, under the title "Finance Transit," to discuss the problem of financing transportation through the participation of benefited groups. Realizing that a considerable migration of motoring residents has already taken place from city to suburbs, "Finance Transit" recommended the creation of a Regional Transit Board with powers to plan, finance and provide adequate transit facilities, not with the idea of keeping service within the limits prescribed by nickel fares, but to keep such service up to a standard of quality and to levy assessments upon benefited communities to cover the deficits of operation.

Pedestrians Must Snap Out of It

The Most Effective Way to discourage jaywalking is probably to install a chain fence along the outer edge of the sidewalk, as has been done at two locations in Detroit. The disadvantage is that it prevents curb parking, which in most cities is recognized as the second purpose of business streets, the first being the movement of goods and of passengers in public-carrier vehicles.

How to keep pedestrians out of traffic accidents has already become an ancient problem. It is a problem, however, that is being attacked more vigorously and intelligently than ever before, as evidenced by recent reports which do not attack the pedestrian and his human habits, but examine the pitfalls which constitute his path.

A city desiring light on the pedestrian problem would do well to communicate with the American Automobile Association, whose Burton W. Marsh understands the problem. His "Pedestrian Shorts" presents the equations in 28 snappy paragraphs begin-

(Concluded on page 95)

POSITIVE ACTION!

That's what automatic parking meters give the moment a coin is inserted . . . . . .

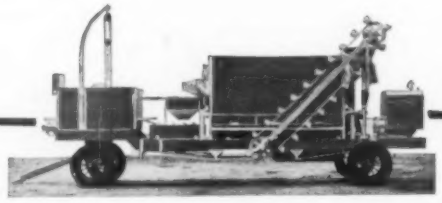
When KARPARK AUTOMATICS are on the street, there is nothing left to chance — no handle left unturned — and every member of the community, from the mayor down, knows that honest and impartial parking regulation is being *automatically* carried out.

All KARPARK Meters are licensed under the patents of VEHICULAR PARKING LTD.

Inquiries for detailed information regarding the solution of municipal parking problems will be welcomed by the

KARPARK CORPORATION

420 LEXINGTON AVENUE • NEW YORK, N. Y.



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A catalog that explains in detail the various types of watering equipment designed to keep your parks and parkways always fresh and green. Skinner System engineering and consulting service has solved every conceivable type of watering problem. We are equipped to handle your watering problems better at lower cost. A card or letter brings you the catalog and details of our service. No obligation.

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—*read* every week by contractors, engineering-construction companies, equipment and materials manufacturers, for news of proposed work, contracts to be let or awarded, all over the U. S.
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—*provides* intensive local, regional and national coverage of possible bidders and the opportunity to let contracts at minimum cost consistent with good work, through more bids.

Ask the Official Proposal Division for details

ENGINEERING NEWS-RECORD 330 W. 42nd ST., NEW YORK, N. Y

Large signs in Minneapolis; the two lower are Lyle signs, with sunburst background built by the city. Upper left—wooden SLOW *sign; right—5 x 5-foot 30-mile sign at entrances to city; lower left—sunburst* SLOW *on 10-foot shaft; right—State Highway standard 24-inch octagon with 36-inch background.*

In using the idea of sunburst signs, we have maintained our standard sign and added the background to focus attention. All signs are mounted 7 feet from bottom of sign to street.—J. C. VINCENT, *Traffic Engineer, Minneapolis, Minn.*

COURTESY OF GENERAL TIRE AND RUBBER CO.

Don't be too hard on him, boss, he's in love

(Continued from page 93)

ning and ending with the necessity for alertness at the curb line. This alertness to the car's 8 yards of progress to the walker's 1 yard, should be instinctive in all persons born since 1905. The job, therefore, is to make this a *conscious* trait in the young and to instill it in the older and the old. Evidence of the possession of this modern trait is reasonable observance of traffic signals, estimating with a very large factor of safety the position of an oncoming vehicle.

In "Speaking for Pedestrian Protection," Mr. Marsh points out that "four out of five adult pedestrians killed in traffic lose their lives between 5 P.M. and 1 A.M."

The 1939 report of the Committee on Pedestrian Control and Protection of the National Safety Council, Inc., by Chairman Leslie J. Sorenson, City Traffic Engineer of Chicago, says that "data from 27 cities of varying sizes showed 72 per cent of pedestrian fatalities occurred at night. Although traffic safety lighting has been found to be effective in the reduction of nearly all types of accidents, the outstanding evidence of its success has been in the prevention of pedestrian accidents."

QUESTION: *If four out of five urban pedestrian deaths occur at night largely because street lighting is dim, why puzzle further over where to start?*

Having made this start, the way to proceed is to install a modern traffic-signal system, in the manner of Portland, Ore., by which not only is traffic movement expedited, but in which the traffic signals themselves are unmistakably seen, as they are on every corner *and* suspended in the center of each intersection. The competent driver cannot fail to get his directions clearly from such a signal system, nor can the conscious pedestrian fail to observe where he fits into the system. He not only sees the red and the green, but there has also been provided for him an exclusive signal which says WALK. With snappy but unhurried timing, pedestrians are quite likely to furnish voluntary cooperation with the clearly intelligent intent and operation of such a modern system of traffic signals.

There remain the drunks, the blind, the stupid, the dreamers, and the unlucky. These are largely the responsibilities of the drivers of motor vehicles. Alertness—that's it—at the wheel as well as at the curb.

"Forty Traffic Signal Lenses at Each Intersection" Watch for this article!

LIFE SAVING IS A NIGHTTIME JOB

SAFETY LIGHTING . . .

In large metropolitan cities and smaller towns, too, Traffic Safety Lighting is curtailing nighttime automobile deaths. On this main thoroughfare in Davidson, Michigan, Westinghouse Refractolux Luminaires, installed by the Consumers Power Company, provide adequate driving visibility.

Without proper illumination on streets, municipal safety efforts are nullified at night, and the nighttime fatality rate soars despite the reduction of traffic after sundown. Lifesaving on streets and highways *is* a nighttime job.

Westinghouse Refractolux Luminaires deliver incident light to the roadway at low angles to render the pavement bright for the automobile driver. Hazards on the roadway appear as silhouettes against the brighter pavement beyond . . . allowing the motorist to see hazards in time to avoid them. These units provide glareless light from shielded light sources, high intensities of light from aluminum surfaces finished by the Alzak process and accurate light control.

One of the exclusive features of Refractolux is lateral control of light by means of a single element refractor. The refractor has prisms on its inner surface, which control the light laterally, and a smooth outer surface, which makes maintenance a simple matter. The refractor is lightly etched for better diffusion. Internal aluminum biflectors redirect light from the curb side of the street to the roadway.

Find out how Refractolux Traffic Safety Lighting can save lives after sundown. Ask your nearest Westinghouse Lighting Specialist for the new TRAFFIC SAFETY LIGHTING BENEFITS book, B-2189; or write Westinghouse Electric & Manufacturing Company, Lighting Division, Edgewater Park, Cleveland, Ohio.

Refractolux is designed for residential streets, light and medium traffic thoroughfares . . . for high and low voltage circuits. Hinged Glove arrangement simplifies servicing and maintenance.

Westinghouse Lighting Equipment

During February we hope you will remember to mention THE AMERICAN CITY.

District of Columbia Inspects 137,654 Vehicles

By W. A. Van Duzer
Director of Vehicles and Traffic, Washington, D. C.

THE District of Columbia has just completed its first period of compulsory motor-vehicle inspection. From June 15 to December 31, 1939, the eight lanes inspected 117,055 passenger cars, 13,522 trucks, 5,850 taxicabs, and 1,227 buses.

Each of the two stations is 150 x 74 feet and has four lanes, each equipped with Bear Scuff detectors, Bear-Robison front-end lifts (full air-operated), Weaver brake testers, and Kent-Moore Robot headlight testers. The stations are operated from 8 A. M. to 6:30 P. M. on week days and 8 A. M. to 4 P. M. on Saturdays. Owners need not accompany their vehicles to the stations, which inspect 1,200 vehicles daily. Headlights, brakes and wheel alignment show the largest percentages of rejection.

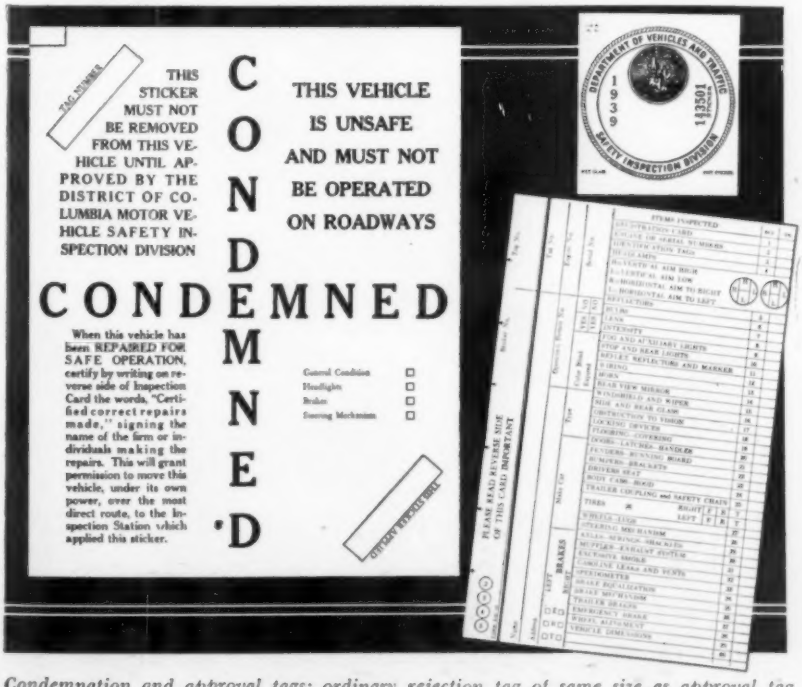
If during inspection a vehicle is found defective in any one of its vital parts, a red sticker is pasted on the windshield, and ten days are allowed for correction. A completely unsafe vehicle is plastered with an 8 x 10-inch yellow sticker and cranes remove it from the station.

As defective headlamps are the major cause of rejection, principal attention will be given here to that factor. This was the cause of rejection in 2,000 cases out of the first 10,000 rejections. For the complete period the percentage was still greater. The test covers horizontal and vertical aim, output, bulb focus and lamp defects. Several years ago, anywhere from 10 to 30 minutes would be required to make these tests, but with this photoelectric equipment one minute does them.

The night lights are turned on, and the Kent-Moore Robot is moved on a track to a position directly in front of the radiator and by gun sights lined up with the car center line. The horizontal aim scale is set at zero and the tester is moved in front of the right headlamp. The aim of the beam is observed on the tester screen, which is graduated both vertically and horizontally. The tester is then moved slightly to pick up the high intensity center of the beam with the photocell, thus providing a quick candlepower output reading on the meter. The left lamp is then tested.

One of Washington's Safety Lanes with Headlight Tester in Foreground

Once a week the Robots are themselves tested, first for alignment by means of a "light gun" which shoots a pencil of light which is compared with the Robot screen center, and then for accuracy of the photoelectric meter which measures lamp output.


TAG NUMBER
THIS STICKER MUST NOT BE REMOVED FROM THIS VEHICLE UNTIL APPROVED BY THE DISTRICT OF COLUMBIA MOTOR VEHICLE SAFETY INSPECTION DIVISION
CONDEMNED
THIS VEHICLE IS UNSAFE AND MUST NOT BE OPERATED ON ROADWAYS
CONDEMNED
When this vehicle has been REPAIRED FOR SAFE OPERATION, certify by writing on reverse side of Inspection Card the words, "Certified correct repairs made," signing the name of the firm or individuals making the repairs. This will grant permission to move this vehicle, under its own power, over the most direct route, to the Inspection Station which applied this sticker.
General Condition
Headlights
Brakes
Steering Mechanism
DEPARTMENT OF VEHICLES AND TRAFFIC
1939
SAFETY INSPECTION DIVISION
PLEASE READ REVERSE SIDE OF THIS CARD IMPORTANT

Condemnation and approval tags; ordinary rejection tag of same size as approval tag is not shown here; at lower right is card given car owner and listing the tests

For Larger Signs and Signal Lenses

I Favor Oversized Signs Standardized in respect to color, type of lettering—and size.

A case illustrates their value. At a certain location we had standard 24 x 24-inch stop signs but the accidents continued to happen from cars running past the stop signs. Drivers were asked if they had seen the 24-inch sign, and they usually said no. I had 36 x 36-inch stop signs (standard in all other respects) installed, and since then we have not had an accident at these locations. From 20 to 25 violations per day occurred with the old signs, while only one violation has been recorded with the larger signs.

I am also of the belief that considerable research should be done with the view to *larger lenses in traffic signals*. We have literally had thousands of accident cases where the motorists claim they did not see the signal and I am inclined to agree with them, especially since we have so many neon signs close to the signals.

I am certainly in favor of fewer but larger and better signs and signals.

Z. A. Faulkner,
City Traffic Engineer, Evanston, Ill.

Wisconsin Moves Ahead

HONOR ROLL

of Cities Relighting Main Traffic Arteries to Save Lives

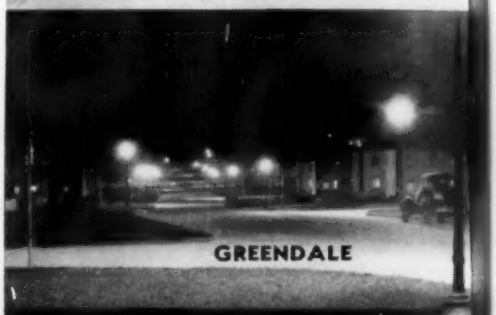
GREEN BAY
DE PERE
GREENDALE
OSHKOSH
EAU CLAIRE

HERE are five progressive Wisconsin cities that have declared war on night accidents. They are proving to other Wisconsin cities, and to cities all over the country, that the relighting of main traffic arteries results in reduced property damage and fewer injuries and deaths.

A careful survey conducted in 47 cities of the country showed that main traffic arteries are from 10 to 30 times more dangerous at night than by day. Nation-wide traffic records indicate that the relighting of these arteries would reduce traffic fatalities by as much as 75 per cent.

If your city hasn't entered this widespread war against darkness, there is probably no improvement it could make of greater benefit to your people than a lighting program to reduce night accidents.

We'd like to send you more information on safety lighting. Write and ask for Publication GEA-2870, *A Proved Plan for Saving Lives*. Or you may wish to talk to a G-E lighting specialist. He will be glad to help you plan your lighting program. General Electric, Schenectady, N. Y.



GENERAL ELECTRIC

500-366

Outdoor Lighting

Streets—Highways—Floodlighting

Bringing Daytime Safety to Detroit's Night

By Louis J. Schrenk
General Superintendent, Detroit Public Lighting Commission

THE world has beaten a path to Detroit—big city of cheerful night. From hundreds of American cities and from cities of Europe and Asia, men and letters have come, to find out how an average ratio of night to day fatalities of 6.9 to 1 during 1934, 1935 and 1936, was reduced to 1.4 to 1 for 1937, 1938, 1939. We were surprised ourselves.

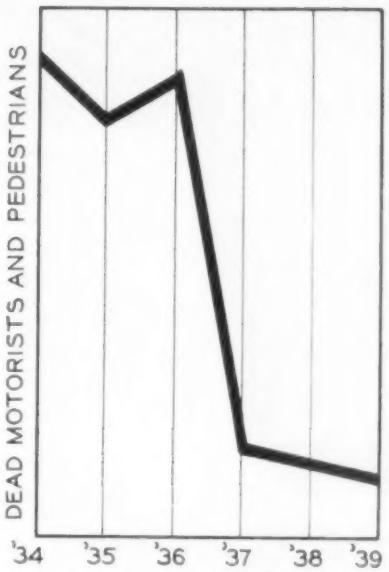
In relighting Detroit, it was necessary to start below scratch, because in 1931-32 we curtailed service on a great number of streets by cutting out every other lamp, and reduced the voltage on others in order to prolong the life of the lamps from one-half year to a life of one year. We did this despite the fact that all electricity for municipal purposes is generated by the city-owned Mistersky power station, whose four 20,000-kw Westinghouse turbo-generators produce current at the switchboard at an operating and maintenance cost of 4 mills and a total cost of 6.6 mills. The saving amounted to $100,000; but night fatalities jumped from 124 in the ten months preceding curtailment to 151 in the ten months after.

A survey revealed that on 15½ miles of well-lighted streets there had been 8 night fatalities and 6 day fatalities in the same period, while on 31 miles of under-lighted streets there had been 111 night fatalities and 16 day fatalities in the same period. This convinced the Council of the value of street lighting, and during the last four months of 1936, seven miles of safety lighting was built. At the end of 1937 there was 100 miles of safety lighting; at the end of 1938 there was 250 miles, at the end of last September, 300 miles. In addition to this outright replacement of equipment, 3,500 new street lights have been installed throughout the city.

The increased cost over 1936 amounts to 13½ per cent for current and 11½ per cent for interest and depreciation.

This safety lighting, moreover, has more than doubled the driver's visibility distance as compared with the former lighting on any Detroit streets, with the exception of those spectacularly lighted. This improvement is obtained by the new equipment which captures upward light and the light back of the curb and places it all on the street surface. This makes for uniform pavement brightness, which improves seeing by silhouette; also seeing by surface detail is of a high order.

At left, General Superintendent Louis J. Schrenk and Commissioner Max J. Witkowski of the Detroit Lighting Commission examine one of the new lights which reduced night traffic deaths by six-sevenths. Upper right—An underpass lighted only by street lighting. Below—Detroit's Mistersky power station, which delivers kilowatt-hours at switchboard for 0.66-cent

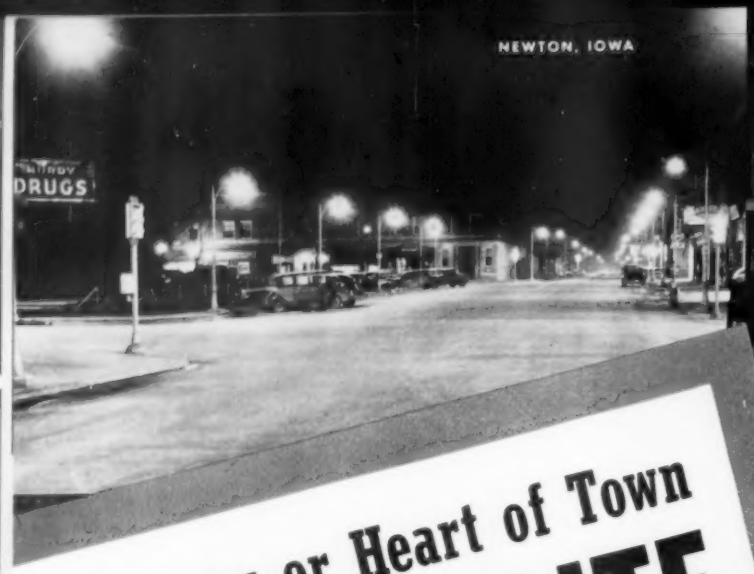


From 7 times as many killed at night to almost as safe as day

Safety lighting costs no more to operate or maintain than do the old type lighting systems. But the results are convincing. For instance, on a two-mile stretch, from October, 1933, to October, 1936, there were 13 night fatalities and no day fatalities. From October, 1937, to October, 1939, with safety lighting on this same two-mile stretch, there were 2 night fatalities and 2 day fatalities. This of course is the ideal, and evidently it can be attained. We need 200 more miles of this lighting.

The former lighting on this two-mile stretch was by upright luminaires containing 10,000-lumen lamps mounted 18 feet high and spaced 100 feet apart. These posts were taken down and replaced by 22-foot steel poles with brackets from which were suspended the modern luminaires containing 10,000-lumen lamps, spaced 100 feet.

Those two descriptions read much alike; but to both motorists and pedestrians they are the difference between night and day.



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Means effective low-cost lighting

L-M Spherolite
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Anywhere you use the L-M Spherolite Luminaire . . . business street, residence street or highway . . . you get effective lighting, good appearance and real economy. The modern Spherolite directs a maximum of light to the roadway . . . provides even illumination over a large area . . . eliminates glare. Ask your L-M representative to show you this remarkable luminaire, just one item in the complete L-M line of street and highway lighting equipment. Write to General Sales Offices, Milwaukee, Wisconsin, for full information.

LINE MATERIAL CO.

Attracting Swimmers and Spectators

Lighting Pools and Fountains

By H. E. Lippman
Lighting Division,
Westinghouse Electric & Mfg. Co.,
Cleveland, Ohio

ALONG with the general trend in outdoor sports, lighting has lifted the swimming pool from its original restricted use to one of wide enjoyment. Even indoor pools suffered from poor lighting and, for that reason, from reduced patronage, while outdoor pools were naturally closed after nightfall. But now overhead floodlights have lengthened the business day for pools. The introduction of underwater floodlights has further improved safety and enjoyment, so that in many pools there are considerably more bathers at night than in the daytime.

Much of the overhead lighting is reflected from the surface of the water and wasted. Underwater lighting, on the other hand, is a pleasant invitation to participate in the cleanest and most healthful of all sports. It transforms the dark uncertainty of a pool into the attraction of crystal-clear sparkling water. A first plunge into its depths should give a feeling of safety and relaxation. The spectator, too, experiences a new pleasure in being able to follow every motion of the swimmer.

Another result of underwater lighting is that any turbidity in the water, or deposits on the floor or walls, become apparent at once. The use of light therefore becomes a factor in sanitation, of which water clarity is now recognized as an index. Only in clear water can underwater lighting reach its maximum efficiency. The absorption and dispersion of light even in apparently clear water is tremendous, and only a slight turbidity can render an otherwise adequate lighting system entirely ineffective.

Lighting Old Pools

Unfortunately, a great number of existing pools have no provision for underwater lighting. A large manufacturer of filtering equipment recently mailed a questionnaire to owners and operators of a number of swimming pools asking what changes, if any, would be made if they were rebuilding their pools. Where improvements were considered, "underwater lighting" was the change most frequently mentioned.

Since it is desirable that submarine lighting equipment be installed flush with the wall surface, the installation of lights in an already-built pool presents difficulties which frequently become prohibitive. The pool wall must be pierced for each fixture, provision made for electrical connection, and the watertight construction restored. The many instances of this nature should serve to make lighting one of the major factors in planning a new pool. Even if available funds do not permit the complete installation, provision should be made for including the niches or receptacles for the fixtures and the electrical ducts. The lights themselves and the wiring may then be added in the future without disturbing the masonry.

Underwater Lighting Methods

Two systems of underwater lighting are in general use, known as the wet-niche and dry-niche systems, obviously according to whether the floodlights are exposed directly to the pool water, or protected from it by lenses mounted in wall portholes.

In wet-niche installations, floodlights are mounted firmly in wall receptacles or niches so as to be easily removable for servicing. The electrical connection to the unit is by rubber cable, of which a length must be coiled in a floor box or in the niche itself to permit removal of the floodlight. Sizes range from 250-watt to 1,500-watt, and body construction is usually of cast bronze to prevent attack by chemicals in the water. Cast aluminum may be used where the water is fresh and untreated. Equipment for wet-niche installations must obviously be watertight in its door and lens gaskets, and the castings must be specially treated to make them impervious to water seepage.

In the dry-niche system of underwater lighting, the pool wall is equipped at intervals with watertight porthole rings and glass lenses, semi-permanently installed, behind which a floodlight reflector and lamp are mounted. Access to the fixture is obtained through a manhole in the floor above, or from a tunnel flanking the pool walls and also utilized for piping. It is obvious that any such manhole or tunnel adds to the pool cost, which is ordinarily higher than that of an equivalent wet-niche installation. On the basis of accessibility, the dry-niche system is favored. On the basis of damage resulting from lens breakage or leakage, the wet-niche system is decidedly favored. Breakage of a lens or leakage of a porthole ring results in flooding the service manhole or the tunnel and can be repaired only by draining the pool water to a level below the portholes. The same accident in a system using wet-niche floodlights fills only the floodlight housing, which can be taken out of service for repairs without shutting down the pool.

A safety feature not to be overlooked, and applying to both wet- and dry-niche systems, is the grounding of the metal parts of the floodlights to prevent electrical shock to swimmers in case a live wire accidentally makes contact with the metal. In some localities this precaution is now required by law, and its value as a safety measure recommends it in all cases. The floodlight is simply provided with a three-conductor rubber cable, two being for the circuit, while the third is connected to the metal body inside. The other end of the grounding conductor is connected to the conduit system or other suitable ground at the floor box of each fixture.

The actual procedure in designing a lighting installation may be obtained from the established manufacturers of equipment. An estimate of the wattage required may be figured by the rule of allowing 2.5 to 3 watts per square foot of pool surface for clear water and light-colored pool surfaces. The overhead lighting required for the sidewalks and diving boards should be from 0.5 to 1.0 watt per square foot of total pool and sidewalk area.

Closely allied to the lighting of public pools is that of bathing beaches. The problem is simply one of general floodlighting over the beach and water area, providing a moderate intensity for the usual beach games and, most important of all, to light the bathers. While it is not possible to penetrate to any great depth of water with overhead lighting, the surface illumination is a valuable asset to the swimmers for their safety and to the lifeguards in their work.

Illuminated Fountains

For outdoor decorative beauty, few sights are more impressive than a fountain. Impressive by day, especially

LAW IS NO SUBSTITUTE FOR LIGHT

YOU can't add *any* laws to your traffic code that will give your citizens the after-dark protection equal to that provided by a *modern* street lighting system. Poor visibility places even the safety-minded motorist and pedestrian under a severe handicap. That's why night driving again had a death rate almost three times that of day driving in 1939. And this ratio of fatalities will continue to exist until cities make light an ally in their drive to stamp out "Death After Dark."

Modern street lighting combines the use of high intensity luminaires with scientific mounting. Union Metal *steel* standards assure the latter by placing the luminaires at the proper distance above and over the street for greatest visibility.

Other factors which prompt progressive communities to specify Union Metal lighting standards are the safety and long life of their all-steel construction plus the contribution of their attractive design to a neat, trim curb line. For complete information, write:

THE UNION METAL MANUFACTURING CO.
CANTON, OHIO

when the fascination of ever-changing water forms has been provided, the beauty is enhanced at night by color blends from underwater lighting. Colored light is fully as effective as the painter's brush, with the advantage here of having motion as well.

Suitable locations for fountains on municipal properties may be found everywhere — public parks, outdoor swimming pools, municipal buildings, water- or sewage-treatment plants.

The factors affecting the selection of a site for a fountain are the space available, location with respect to pedestrian or vehicular traffic, proximity to power and water supply, amount of light on the area from other sources, and the setting. Considerations of space and traffic are important, since they affect the size of the pool and the spilling of water over the edges during windy weather. While it is possible to reduce the heights of sprays or turn off the higher ones entirely to prevent excessive spill, the falling water cannot be confined entirely within the pool, and its spill must be taken into consideration.

Other sources of light in the vicinity, such as street lights or signs, must be considered in the effect they will have on the lighting of the fountain. Where considerable extraneous light exists, the fountain illumination must be increased over the amount required in dark surroundings, particularly in color lighting where the colors are "washed out" by other lights. Surrounding darkness of course shows the fountain lighting to the best advantage.

Lagoons and lakes are sometimes selected as sites for fountains, contrasted with the more usual land sites. The surface of the comparatively large body of water gives a pleasing display of reflections at night and, from a practical viewpoint, eliminates the necessity for a pool. However, other factors such as the submarine foundations and power-supply lines required may make construction costs more than for a similar display on land.

General Lighting Design

The most effective and the most widely used lighting method is that in which waterproof floodlights are mounted inside the pools of the fountain, and the light is directed to the jets or sprays, making the water itself luminous. Direct lighting from floodlights located outside the fountain is seldom used, since the results are mediocre.

Inasmuch as water has light transmission and reflection properties entirely different from the materials encountered in ordinary floodlighting practice, the design procedure must necessarily be modified to take into account these differences.

It should be pointed out at first that the characteristics of the subject to be illuminated—with jets and sprays of various depths and degrees of clarity—make it impossible to reduce the problem of lighting design to a standard procedure. This is particularly true of the wattage requirement to produce a desired effect. This must be determined by experience. In small fountains space is often the deciding factor, the area available for mounting projectors being sufficient for only a moderate or even inadequate number of units.

Where colored lighting is desired, sufficient wattage should be installed to compensate for the absorption of the color lenses. Assuming that the load required for a given installation has been determined on the basis of white light, the factors to be applied in order to obtain equivalent results with colored light are approximately as follows: amber, 1.5; red, 2; green, 3; blue, 5.

Limitations of space and cost frequently necessitate lower color ratio factors, even so far as allowing the same wattage for the colors as for the white light. In these cases the color intensity is of course lower in proportion to the absorption of the lenses, in the order listed above. The average observer is not conscious of moderate differences in intensity, since his attention is occupied by the color display from other than a critically comparative viewpoint.

After estimating the load required to produce the desired result, the next step is to select the floodlights and locate them in the best available positions.

Mobile Color Lighting

The use of both color and motion as a means of attracting attention is frequently embodied in fountain designs. The variety of different color effects possible at any stage of the color cycle depends on the physical characteristics of the fountain. For instance, if the design consists of a number of concentric basins, one above the other, each level may be equipped with lights to give two or more different colors, and the control equipment designed so that the levels are illuminated in the same colors during part of the cycle, and in different colors during the remainder of the cycle.

Where a number of jets or sprays project upward, a similar effect is obtained by providing color equipment for each display and arranging the cycle so that a complete spectrum appears to revolve about the center of the fountain. The success in producing these effects depends on the extent to which light of one color can be prevented from spilling into an area illuminated by a different color, which is obviously dependent on the space between adjacent displays and on lighting-equipment location and beam characteristics.

Mobile color lighting necessarily demands that sufficient wattage be installed in each color to conform with the requirements for a still lighting installation in that color alone. It is this duplication of equipment which sometimes makes it necessary to confine the system to two or three colors on account of the expense involved or a lack of suitable space for the necessary projectors.

The automatic sequence of color blends may be obtained by five general methods. The flasher is the simplest and least expensive of the controls. The resistance dimmer consists of a rheostat for each circuit in series with the lighting load, producing gradual changes in color throughout the cycle. The reactance dimmer system is a modification of the resistance dimmer, suitable for larger loads. The rotary transformer consists of what amounts to a wound-rotor induction motor in which the lighting loads are each connected to a winding in the stator, while the power supply is connected to the rotor winding. It is adaptable chiefly to the control of three-color circuits having a regular cycle, since the standard construction consists of three symmetrically placed windings on the stator of the machine. The vacuum tube system is an elaboration of the reactance dimmer system, employing reactors in the load circuits, and a system of vacuum tubes and potentiometers to control the direct-current supply to the reactor.

The water pressure required for the displays in the fountain is ordinarily obtained by a motor-driven centrifugal pump of single or double suction type. Both pressure and water capacity (gallons per minute) must be considered in selecting a pump, both of which depend on the type of water displays. Manufacturers should be consulted to obtain the correct size of pump and the motor horsepower required to drive it.

The attraction of a fountain having a variety of water displays is greatly enhanced by automatically operating the jets and sprays alone and in various combinations through a predetermined cycle. For this purpose an electrically operated valve is placed in each supply line and controlled by a motor-driven flasher with a contact for each valve.

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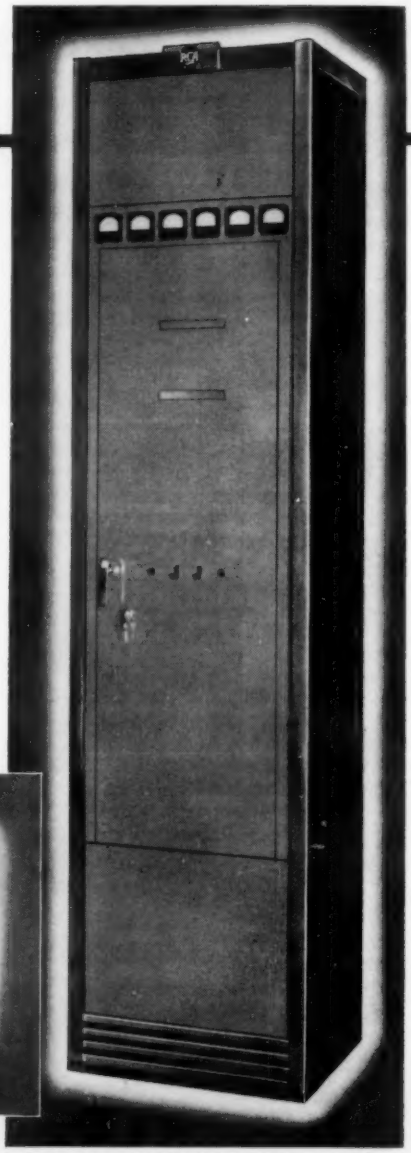

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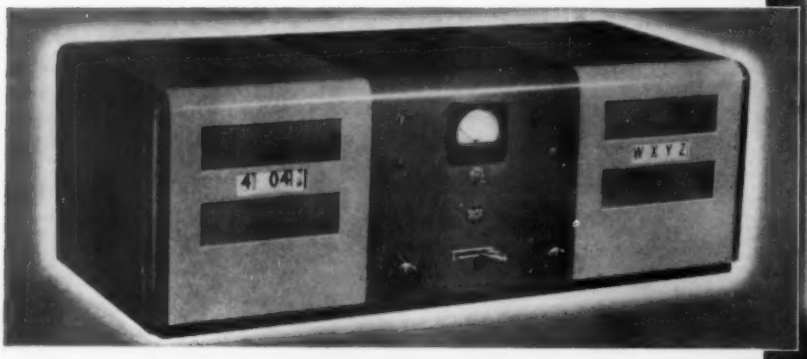

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Current Items from the Public Administration Clearing House

Health Insurance Plans for Public Employees

GROUP HEALTH INSURANCE PLANS for public employees, set up for several governmental groups during the past few years, were established for state employees in California and for utility employees of Hamilton, Ohio, in 1939, the Civil Service Assembly of the United States and Canada reports.

The California State Employees' Association arranged for low-cost medical service with the California Physicians' Service, to cover all employees earning $3,000 or less a year. Medical and surgical care and 21 days' hospitalization are provided for a monthly fee of $2.50.

Hamilton recently added provisions for hospital and surgical care to a group insurance plan in effect since 1937 which includes retirement annuities, sickness and accident benefits and life insurance. A private insurance company writes the whole program.

Under the plan in force in Hamilton, the city and the employee share the cost of life insurance and retirement contributions. Insurance against sickness and accidents, as well as for hospitalization and surgical care, is paid for entirely by the employee. Hospital and surgical coverage cost $0.80-$1.10 a month, depending on salary.

Most of the low-cost medical-care plans in existence for governmental employees have been adopted on the West Coast, the Assembly pointed out. The Ross-Loos Medical Group, organized in 1929 in Los Angeles City and County at the original request of water and power employees, now has approximately 21,000 subscribers, including governmental workers and employees of private business. The Ross-Loos clinic charges a fee of $2.50 a month, which pays for services of general practitioners, specialists and surgeons, in the home, clinic, or hospital.

San Francisco, whose electorate approved a compulsory health insurance plan for municipal employees in 1937, now has approximately 10,000 workers covered, each paying $2.25 a month for individual care, or a slightly larger amount if dependents are included.

Other cities in which group insurance plans are in effect for municipal employees include San Diego, Calif., and Washington, D. C. The Group Health Association, started by Home Owners' Loan Corporation employees in 1937, has enrolled members from about 40 Federal agencies. Hospitalization plans only are provided for municipal employees in Toledo, Cleveland and Akron, Ohio, and for employees of the New York City Post Office Department.

Long-Range Financial Plan Proves Practical

A LONG-RANGE PLAN designed to rid the city of debt so that it may operate on a pay-as-you-go basis by 1947 is reported to be working well in Two Rivers, Wis. This city—of 10,000 population—pioneered among municipalities of its population class in developing such a finance plan, which covers an 18-year period.

Designed to eliminate bonded indebtedness, the program does not depend upon curtailment of capital improvements or an increase in the tax rate, according to a report to the International City Managers' Association. Started in 1929, the plan provides for annual payments of around $65,500 for bonds and interest until 1947. Thereafter the money can be used each year for construction of physical improvements without increasing the tax rate.*

In working out the program, city officials first listed the most important major improvements to be made. In no period of the city's history, the Association said, have so many public improvements been made as during the 10 years the plan has been in operation; yet the tax rate was reduced from $30 to $26.50. Since 1929, the city has built one bridge, two new schools, a sewage-disposal plant and a fire station, and has rebuilt harbor facilities, 71 blocks of concrete streets and 10 miles of sidewalks.

The burden on the resources of the city resulting from the depression has been offset largely by Federal funds, according to the report. A large part of the sewer, paving and sidewalk work was done as work relief projects. The Public Works Administration aided financially in the repair of harbor facilities, and in the construction of the sewage-disposal plant and one of the schools.

In connection with the Two Rivers long-term plan, several cities are planning six-year programs in cooperation with the National Resources Planning Board in an effort to develop techniques and procedures and to show the practicability of such programs. Preparation for the six-year program includes making an inventory of desired projects, determining probable future revenues, and scheduling desired projects in order of priority for the next six years. The programs are based on estimated revenue, and may be revised annually in the light of future changes in needs, desirability and funds. Six-year plans of this type have been developed in Winchester, Mass., Nashville, Tenn., Dallas, Texas, Sacramento, Calif., Kalamazoo, Mich., Fargo, N. Dak., and Spokane, Wash.

* See THE AMERICAN CITY for September, 1934, page 83.

Largest Municipal Market Terminal Opened

KANSAS CITY, KANS., which has just opened for business one of the largest wholesale fruit and vegetable markets in the country, brings the number of cities of over 5,000 population with municipal markets to about 175, the International City Managers' Association reports. The Kansas City food terminal occupies 62 acres on the raised levee where the Kaw and the Missouri Rivers meet. It was built by the municipality with financial aid from the Union Pacific Railroad and Federal works funds, and the Kansas State Highway Commission constructed a viaduct which eliminates grade crossings at the entrance to the market property.

Planned to serve farmers and food wholesalers from ten to fifteen states in the area around Kansas City, the market contains 78 units in four main produce buildings. Each unit has an elevator, mezzanine office space and display and storage rooms. In addition, there is a five-story cold-storage warehouse, a filling station, a telegraph office, a bank, nearly 500 stalls for truck farmers and small growers, parking space for thousands of cars, and switch tracks to bring freight cars to the market door. The Kansas City market is administered by the city, through a market master appointed by the Mayor. The City Auditor will be in direct charge of its financial administration.

Municipal wholesale or retail produce markets have now been built in most of the major cities of the country, according to the Association. Competition from distant produce centers through fast transportation, and the need for an orderly and economical distribution of foodstuffs within met-

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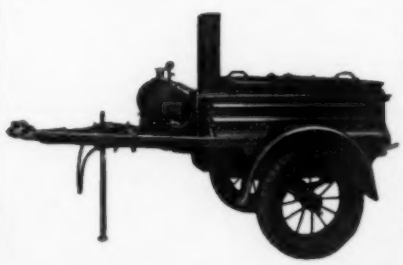

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ropolitan areas, are reasons for new market building or reconstruction of outdated terminals, some of which are more than 100 years old. Among cities which recently have constructed new markets, planned to meet changing conditions, are Memphis, Tenn., Minneapolis, Minn., Syracuse, N. Y., and Grand Rapids, Mich. Kansas City, Mo., plans to rebuild its old food market now for retail use only.

Schenectady, N. Y., Hands Out Municipal Report with Tax Receipt

SCHENECTADY, N. Y., HAS ADOPTED a new method of distributing the city's annual report, the International City Managers' Association notes. A copy is given out with every tax receipt.

About 9,000 copies of the 1939 report were given out in this way, or one for every 2½ families. In addition, about 1,500 copies were given to representative citizens either by mail or by distribution at club meetings, and 500 were put in the school libraries. Junior high schools are using the report as a textbook for the study of local government, and the high schools make use of it as a reference book.

The report was followed last year by an exhibit of municipal activities in the city museum. The exhibition, viewed by several thousand persons, showed much of the equipment used by the city. Employees were stationed at all booths to explain the displays. A special feature was the daily demonstration of specific work, such as making sweeper brooms, operating a two-way radio, testing milk, and operating fire-fighting apparatus.

When Public Officials Have a Personal Interest in Public Contracts

LAWS OR REGULATIONS designed to keep public officials from profiting by business dealings with the government should be carefully drawn in order to avoid keeping public-spirited and competent citizens out of office, the American Municipal Association points out after making a survey of such laws.

The survey shows that officers and employees of state and local governments are generally prohibited by statute or city charter from having any personal interest in the purchasing or contracts of the public agency for which they work. The prohibition, a guard against fraud or the use of public office to promote private interests, extends to contracts for merchandise, supplies, building materials, labor, professional services, and supervisory and construction work.

Difficulties occur most often in the smaller units of government, the survey shows. In these places, John Citizen who sells hardware cannot afford to forego his sales to the city hall by becoming a councilman at little or no pay. If he does so, his city, in turn, may be inconvenienced in buying hardware because Councilman John happens to be the only hardware merchant in the vicinity.

To overcome such drawbacks, several states have considered the possibility of modifying their rules against public-official interest in government contracts. Modern courts tend to modify the rule prohibiting any contracts between governmental agencies and corporations whose officers serve the government, holding such contracts voidable but not void.

All but four of the states—Delaware, New Hampshire, Rhode Island and Vermont—have some kind of statutory prohibition of governmental contracts in which public employees are interested. Three other states—Massachusetts, Oregon and South Carolina—apply restrictions to municipal officers only. The coverage of the provisions ranges from councilmen to all public employees, including school employees. A number of the laws cover only special items such as printing contracts and textbooks, or apply only to employees of certain departments.

All but six states have some penal provision enforcing such restrictions on the business dealings of public officials. In addition to the four without any prohibition, New Mexico and Oregon provide no penalty. The statutes in general, however, do not provide a very definite or uniform pattern as to either governmental units or offices covered.

City Manager Appointments

ARTHUR J. ADAMS has replaced John Aiken as City Manager of Auburn, N. Y.

William M. Drennon, retired insurance executive, has been appointed City Manager of Kansas City, Mo.

L. V. Bean, City Manager of Paducah, Ky., for the past six years, returned to his former post as City Manager of Waycross, Ga., on February 1. He replaces H. M. Pafford.

L. B. Eurit, Assistant City Manager, has been appointed City Manager of Stuart, Fla., to succeed C. E. Schroeder, who has been retired.

W. W. Mynatt, former City Manager of Knoxville, Tenn., from 1933 to 1936, and Mayor from 1938 to 1940, again is installed as City Manager of Knoxville. That city returned to manager government after an interim due to the revoking of the manager charter by the State Legislature in 1937.

James P. Smith succeeded L. V. Bean as City Manager of Paducah, Ky.

William H. Johnson, former Mayor, has been appointed City Manager of Mamaroneck, N. Y.

R. J. Whitney, City Manager of Mamaroneck, N. Y., and previously of Royal Oak, Mich., has been appointed first City Manager of Yonkers, N. Y. He took office on January 2.

G. W. Shaw, City Manager of Hazard, Ky., and previously Manager of Big Stone Gap, Va., has been appointed first City Manager of Columbia, Tenn.

R. L. Chalk, former Police Chief, has succeeded C. H. Collins as City Manager of Dunedin, Fla.

Arnold J. Dillon, principal of a county school, has succeeded Wilbur H. Story, as City Manager of Springfield, Ohio.

CLARENCE E. RIDLEY,
Executive Director, International City Managers' Association.

The Municipal Bond Market

Recent sales of new issues from January numbers of *The Bond Buyer:*

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$1,700,000	Vermont, 1938 Storm Notes	.50	3-33 Avg.	.49
150,000	Bridgeport, Conn., Sewage-Treatment Plant	1	2-6 Ser.	.88
290,000	Abington Tp., Pa., School	1.5	11.5 Avg.	1.42
118,000	Harrison, N. Y., Refunding	1.5	4.75 Avg.	1.44
150,000	Woodbury Co., Iowa, Poor Relief Refunding	1.5	8 Avg.	1.46
1,000,000	West Virginia, Road	1.75	12.66 Avg.	1.71
730,000	Minneapolis, Minn., Refunding	1.75	1-10 Ser.	1.74
250,000	Pittsburgh, Pa., Public Welfare Relief	1.75	1-20 Ser.	1.74
150,000	Irvington, N. Y., Sewer	2	10.75 Avg.	1.96
112,000	Morristown, N. J., Water, Sewer and Improvement	2	5 Avg.	1.98
122,000	Covington, Va., Refunding	2.25	12.85 Avg.	2.11
450,000	Scranton, Pa., School; Operating	2.25	1-10 Ser.	2.24
100,000	Portsmouth, Ohio, Flood Defense	2.5	11.25 Avg.	2.31
516,000	White Plains, N. Y., Refunding	2.4	16.5 Avg.	2.38
1,892,000	Trenton, N. J., General Refunding; School	3	15.5 Avg.	2.96
130,000	Newport Beach, Calif., Pier	3.5	10.56 Avg.	3.38
459,054	Kansas City, Mo., Judgment Funding	4.25	9.85 Avg.	4.25

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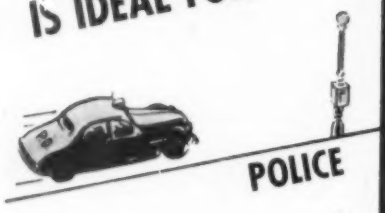
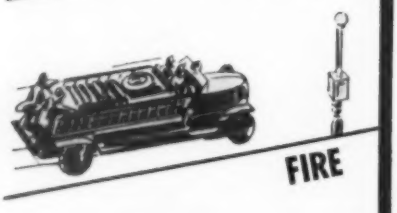


POLICE



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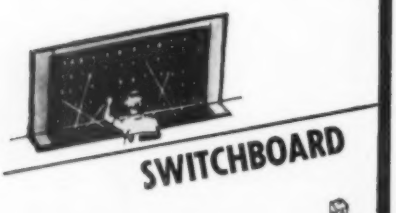

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Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

Zoning and Planning Notes

With the cooperation of
EDWARD M. BASSETT
Author of "Zoning" and of "The Master Plan"

Zoning Ordinance—Planning Commission, Requirement of More Than Majority Vote of Legislative Body

CALIFORNIA.—*Hopkins v. MacCulloch*, 95 Pac. 2d, 950 (District Court of Appeal, November 13, 1939).—This is an action by adjacent property owners to restrain defendant MacCulloch from using her property for a non-conforming use, contrary to the terms of a zoning ordinance.

Defendant had been using buildings on her land for a café and grocery store before the land was included in a residential district. After having done much work in reconstructing it for this use, she applied for a permit so to do.

The ordinance provides that the City Council, after the receipt of a report and recommendations from the Planning Commission, shall have power to grant variances in the ordinance for various purposes, including the reconstruction of a non-conforming building. If the Planning Commission finds that detriment or injury to the neighborhood will not result from issuance of the permit, it may approve the permit and so report to the City Council for its approval. In the event that the City Planning Commission disapproves any such application, no permit shall issue except upon order of the City Council passed by a full affirmation vote of all its members.

The Planning Commission, in this case, reported against the issuance of the permit. At the meeting of the Council to consider this report, four of its five members were present and voted to approve the issuance of the permit.

This court holds that the permit cannot validly be issued, because all the members of the Council did not so vote, one being absent.

The provision in the law for reference from the City Council to the Planning Commission was not a provision for an unlawful delegation of legislative power. The Planning Commission was an advisory body, and had power only to make recommendations to the Council. The maintenance of the grocery store and café contrary to law, in a residential district, is a nuisance, and may be enjoined.

EDITOR'S NOTE.—This case in effect holds that the requirement of a unanimous vote is valid. See to the same effect the Ohio case of *State ex rel Bateman v. Zochristz* in our issue for November, 1939.

NORTH CAROLINA.—*Eldridge v. Mangum*, 5 S. E. 2d, 721 (Supreme Court, November 29, 1939).—An ordinance of the city of Raleigh provided that in case of a protest against a proposed amendment of provisions of a zoning ordinance signed by owners of 20 per cent or more of the area of the lots included in the proposed change, or of certain neighboring lots, the amendment should become effective only by majority vote of all the City Commissioners. A state statute provided that it should become effective only on their three-fourths vote.

Held that the statute must prevail over the ordinance, and a three-fourths vote was necessary.

Earth Products

MASSACHUSETTS.—*Town of Lexington v. Menotomy Trust Co.*, 23 N. E. 2d, 559 (Supreme Court, November 17, 1939).—The defendant Trust Company, and the defendant Cadario, were engaged in stripping land, owned by them, of loam and piling it up on the land preparatory to removal. This the plaintiff town contends is contrary to its zoning ordinance in a residential district, and this claim is sustained by the Court. In this district, farming and truck gardening are allowed, but stripping land of its top-soil is not an incident to these uses; and "it is of no importance that the unpermitted use may not have amounted to a business."

EDITOR'S NOTE.—This case is contrary to the weight of authority, holding that although an owner may be forbidden by a zoning ordinance to use his earth products on his premises in the conducting, there, of a business or an industry, he cannot be forbidden to remove them for use elsewhere, as such a prohibition would deprive him unreasonably of his property; see Editor's Note to the New York case of *Post Brick Co., Inc. v. Thompson* in these Notes for October, 1939.

Zoning Ordinance—Delay Issuing—Pending Change

NEW JERSEY.—*Eastern Boulevard Corp. v. Millaredt, Building Inspector of the town of West New York*, 8 Atl. 2d, 688 (Court of Errors and Appeals, October 16, 1939).—On March 22, 1938, an amendment to the town zoning ordinance was adopted by the governing body of the town. This amendment placed the lands of the Eastern Boulevard Corporation in a zone restricted against the erection of apartment houses more than two-and-a-half stories in height and designed for use by more than three families. On September 14, 1938, this amendment was set aside by the courts because of irregularities in adoption.

On May 26, 1938, however, the Corporation applied for a building permit for an apartment house exceeding the size permitted by the above amendment.

On September 8, 1938, at a special meeting called for several purposes, an ordinance was introduced to amend the zoning ordinance, which likewise restricted the Corporation's property against the proposed use. The ordinance was adopted October 25, 1938.

Application for mandamus was made by the Corporation December 3. At this time the amended zoning ordinance was in effect.

Held by the Court that the amendment was applicable to the Corporation's request for mandamus, and that, therefore, the request must be refused.

EDITOR'S NOTE.—This case is contrary to the weight of authority. See the New York case of *O'Neil v. Riverdale Inc.*, with note, in our May, 1939, issue.

Zoning Variances

NEW YORK.—*Harmon-on-Hudson Co., Inc. v. Holcombe*, reported in *New York Law Journal, December* 28, 1939, p. 2347. The premises in question are located in a "business E" district, in which by the ordinance a gasoline filling station is permitted upon approval of the village Board of Appeals, subject to the consent of a given percentage of neighboring property owners. The ordinance also authorizes variances for practical difficulties or unnecessary hardship.

The Harmon Company appealed to the Board of Appeals for permission to construct a filling station on its land in a "business E" district. The Board refused its permission on the ground that the required consents had not been obtained. From the language used, it appeared that the Board assumed that the power of variance for difficulties or hardship was subject to the provision with regard to consents. The ordinance does not warrant any such interpretation, and in any event the state statute empowering the local legislative body of the village to pass zoning ordinances does not authorize it so to limit the power of the Board of Appeals to vary for difficulties or hardship; the power to grant such variances is a distinct grant from the state to the village, and the state does not grant the village the power to limit it by any consent clause.

Considered as a permissive authority in addition to, and not in limitation of, the authority to grant a variance for practical difficulties or unnecessary hardship, the provisions of the consent section are not unconstitutional. The trouble in this case is that the papers contain no statement of practical difficulties.

New York Legislation

Local Planning and Zoning Powers and Procedures in the State of New York.—By Harold M. Lewis, Consultant. Apply to the Division of State Planning, 353 Broadway, Albany, N. Y. 1940. 91 pp.

This pamphlet gives in non-technical language, the history, summary of present laws, and suggestions for procedure, for municipal planning and zoning, and county planning, in New York. Short chapters are devoted to regional planning, and assistance available to local planning agencies. Laws are included in full.

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Municipal Law Notes and Decisions

Prepared by National Institute of Municipal Law Officers, Washington, D. C.

John A. McIntire and Charles S. Rhyne, Legal Counsel

Sidewalks—Snow, Ice—Accidents Resulting From

Several recent cases discuss the liability of cities for accidents caused by snow and ice which has accumulated on sidewalks. At this time of year many city officials are receiving various claims as a result of such accidents, and some of the more recent cases are here noted.

The city of Buffalo was held not liable for injury to a pedestrian who slipped and fell on ice on the sidewalk, in front of a fire station, which had been there but a short time as the result of a general condition, and which the station captain, who had learned of the condition, had ordered sprinkled with ashes. The Court held that although the city might be considered as having notice of the condition, it had not had a reasonable time to correct it. *Stierly* v. *Buffalo*, 15 N. Y. S. (2d) 1000 (Sup. Ct., App. Div. 1939).

In *Goldstein* v. *Dattelbaum*, 15 N. Y. S. (2d) 1015 (Sup. Ct. App. Div. 1939), New York City was held not liable for injuries sustained by a pedestrian who fell on a snow- and ice-covered sidewalk where the accident occurred about 10 hours after a 24-hour snowfall of 8.8 inches, notwithstanding the fact that in the meanwhile some sidewalks had been cleared.

In *Hallock* v. *Ballachey*, 15 N. Y. S. (2d) 853 (Sup. Ct. App. Div. 1939), the Court in finding no liability stated that in the winter climate in the city of Buffalo it is unreasonable to expect steps and sidewalks to be entirely free from snow and ice. See also *Dea* v. *Marxhausen*, 16 N. Y. S. (2d) 8 (Sup. Ct. N. Y. App. Div. 1939), and *Maine* v. *City of Des Moines*, 181 N. W. 248 (Iowa, 1921). The latter case holds the city not liable where water dripped from a canopy projecting over the sidewalk, forming an icy surface on the sidewalk, and caused a fall and injuries to the plaintiff.

In *Firestone Tire and Rubber Company* v. *Nollman*, 107 Fed. (2d) 176 (C.C.A. 5th, 1939), a pedestrian suing an abutting landowner to recover for injuries caused by a fall as a result of ice on the sidewalk in front of the landowner's premises in the city of Atlanta, was held entitled to a jury's verdict on the question of negligence. See also cases on abutter's liability *infra*.

In *Stolpe* v. *City of Duquesne*, 9 A. (2d) 427 (Pa. Nov. 27, 1939), the Court held the city liable to a pedestrian who while taking a short-cut by way of a park walk fell through a covering of snow into a hole 3 feet in diameter and 6 inches deep, a hole which the evidence shows had existed in the walk for over a year.

In *City of Covington* v. *Keal*, 133 S. W. (2d) 49 (Ky. Oct. 31, 1939), where clay was allowed to accumulate and remain on a sidewalk and the clay became wet and slick, causing plaintiff to fall and break her hip, the city was held liable because the condition had existed for such a long time that the city had constructive notice of it. See contra: *O'Reilly* v. *City of Syracuse*, 63 N. Y. S. 520 (1900); *Yeager* v. *City of Bluefield*, 40 W. Va. 484, 21 S. E. 752 (1895); *City Council of Augusta* v. *Hamilton*, 194 S. E. 244 (Ga. 1937).

Administrative Law—Standards

An ordinance of the city of Algoma, Wis., requiring a person to receive a permit from the mayor and chief engineer before erecting a structure within fire limits, was void for lack of standards to control the exercise of authority. *Algoma* v. *Peterson*, 288 N. W. 809 (Wis., 1939).

Airports—Concession Agreement

The Buffalo charter requiring that a lease of city property where the annual rental shall exceed the sum of $1,000 shall be granted only after competitive bids, did not apply to a lease for a restaurant concession at the Buffalo airport where the annual rental fixed by counsel was $960. The Court denied the Mayor's contention that the obligation of the lessee to pay charges for water, gas and electricity used in operation of the restaurant should be considered part of the rental. *Arcangel* v. *Holling*, 15 N. Y. S. (2d) 975 (Sup. Ct. N. Y., App. Div., 1939).

Barber Shops—Regulation of Hours

An ordinance of Concord, N. H., regulating the hours of opening and closing of barber shops and prescribing that no barber shop shall be operated in violation of the state health code, is void as unreasonable and fettering free enterprise. *State* v. *Paille*, 9 Atl. (2d) 663 (N. H., 1939). See in accord: *Oklahoma City* v. *Johnson*, 3 Municipal Law Journal 105, 82 Pac. (2d) 1057 (Okla., 1939); *Opinion of the Justices*, 3 Municipal Law Journal 58 (Sup. Jud. Ct., Mass., 1939). The cases other than those just listed, both in accord and contra, are collected in Report No. 30 of the National Institute of Municipal Law Officers, Opinion No. 14, entitled "Barber Shop Regulation—Hours."

Civil Service—Appeals

Act which granted right of appeal to removed civil service employee but denied such right to the city of Pittsburgh removing officer is valid, as cities are agents of the state and the state may exclude cities from benefits it gives to individuals. *Appeal of Carroll*, 9 Atl. (2d) 407 (Pa., Nov. 27, 1939).

Contracts—Authority for Signing

Where contract for purchase of fire hose was signed by City Secretary, the seller could prove that the City Commission authorized the purchase, by a witness who was present at a commission meeting, even though the written minutes of the meeting show no such authorization. *City of Electra* v. *American-LaFrance and Foamite Industries, Inc.*, 133 S. W. (2d) 223 (Tex. Civ. App., Oct. 20, 1939).

Damages—Fall on Sidewalk

Judgment of $10,000 for 40-year-old woman who sustained a broken hip and became a helpless cripple and suffered intense pain and would continue to suffer pain, and who prior to injury was earning $23 per week as a saleslady, but after the injury was unable to earn a living, held not to be excessive. *City of Covington* v. *Keal*, 133 S. W. (2d) 49 (Ky., Oct. 31, 1939).

Fire Truck—Accidents

A fire truck en route to an engine house other than the one at which it is usually stationed, to replace a fire truck which has been called to a fire, is answering an "emergency alarm," and a person injured in a collision with such fire truck cannot hold the city liable. *Staudenheimer* v. *City of Newark*, 23 N. E. (2d) 845 (Ohio Ct. App., 1939).

Home Rule—State Affairs

Removal of justices of the peace is a state function, since justices of the peace are state officers. This power belongs to the governor, and an attempt to confer such power on the Jackson city council under a home rule charter is invalid. *State ex rel Dann* v. *Hutchinson*, 288 N. W. 845 (Minn., 1939).

Mandamus

Mandamus, although a legal remedy, is an extraordinary remedy which is not awarded as a matter of right, but in the exercise of judicial discretion and on equitable principles. *Denver-Greeley Valley Irr. Dist.* v. *McNeil*, 106 F. (2d) 288 (C. C. A. 10th, 1939). See *Asbury Park* v. *Christmas*, 78 Fed. (2d) 1005 (C. C. A. 3d, 1935), cert. den. 296 U. S. 624.

Mayors—Power to Sign

The Muskogee city charter provision authorizing the Mayor to "sign all contracts" does not give the Mayor dictatorial power to execute agreements on behalf of the city independent of council action, but only to perform the normal act of validation by signature after council adoption. *City of Muskogee* v. *Senter*, 96 P. (2d) 534 (Okla., 1939).

Pawnbrokers

Ordinance requiring license in addition to state license for pawnbrokers, and requiring applicants to establish good character, to keep certain specified records, to supply information to chief of police, to hold all purchased and pledged articles for 96 hours thereafter, and to take the thumb-print of all persons from whom they purchase or receive chattels, held valid. *Medias* v. *City of Indianapolis* (Ind., Nov. 28, 1939).

Picketing

The fact that the Supreme Court of Indiana sustained as constitutional the anti-picketing ordinance of Indianapolis, which subsequent to the opinion was adopted by the city of Reno, as its anti-picketing ordinance, is persuasive but not controlling on the Nevada Court as to the constitutionality of the Reno ordinance. The Court held the Reno ordinance invalid as an invasion of civil liberty under the guise of police power. *City of Reno* v. *Second Judicial District Court*, 95 Pac. (2d) 994 (Nev., 1939). (Note: The opinion in this case is unusually well considered and cites most of the important available materials on the subject. One judge dissents in an opinion also well reasoned. See also "Anti-Picketing Ordinances," page 109 of the January, 1940, issue of The American City.

Torts—Sidewalks—Liability of Abutters

While a city may not relieve itself of liability for defective sidewalks by shifting duty to repair to abutters, the ordinances of the city of Savannah making the abutting owner primarily liable to anyone injured by defective condition where abutter permitted condition to remain unrepaired, are constitutional and justify action against the abutting owner. *Kelisen* v. *Savannah Theatres Co.*, 5 S. E. (2d) 712 (Ga., 1939). Compare *Henricks* v. *New Orleans Public Service, Inc.*, 192 So. 383 (La., 1939), holding that charter provision of New Orleans requiring abutting property owner to keep sidewalk in repair creates only a public duty and creates no cause of action against the abutting owner in favor of one injured. See cases *supra* in note entitled "Sidewalks—Snow, Ice—Accidents Resulting From."

Veterans Preference

Provisions of Third Class City Law of Pennsylvania giving war veterans a 15 per cent credit in a civil service examination for policemen for the city of Erie, and waiving for veterans only of the 35-year age limit, is held to violate the Pennsylvania constitutional provision forbidding the granting of any special or "exclusive privilege or immunity." The Court recognizes the validity of statutory preferences of veterans who become eligible to civil service appointment under the same examination and age requirements as other candidates. *Carney* v. *Lowe*, 9 Atl. (2d) 418 (Pa., Nov. 27, 1939).

WPA—Blasting Accident

Property owner could recover damages to building from city caused by blasting on Works Progress Administration sewer project where city contributed to the cost and city engineer superintended the work. *Stocker* v. *City of Richmond*, 132 S. W. (2d) 1116 (Nov. 21, 1939, Mo.).

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Municipal and Civic Publications

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Waste Collection Survey

Combustible Refuse Collection Survey, City of Cleveland.—Miles E. Evans, Director, Department of Public Service, Cleveland, Ohio, in cooperation with WPA. 1939. 52 *pp.*

To make the subject of garbage and waste collection personal, entertaining and even humorous, is indeed an accomplishment, but one that has actually been achieved in this publication, which is informative as well! The survey which it reports consisted of a step-by-step analysis of refuse collection and incineration methods and costs in Cleveland, over a period of about a year. Recommendations are made for improvement of the system. The relation of the citizen to this taken-for-granted city service is brought home most effectively.

Parking Problems

Too Many Cars—Too Little Space.—New England Regional Planning Commission, National Resources Planning Board—Region One, 2100 Federal Building, Boston, Mass. 1939. *v.* + 34 *pp.*

Will Rogers is quoted as saying that to the average man the question of who will be the next president is of minor consequence compared to that really important question, "Where am I going to park my car?" This vexing question is thoroughly discussed in all its aspects in this publication which presents New England experience as given in 400 answers to a questionnaire on the subject. The many types of solutions to the problem are discussed, and the methods of operation of parking facilities. A Supplement gives summary reports from specific New England communities.

Traffic Problems

Two 1939 *Reports to the Street and Highway Traffic Section, National Safety Council, 20 N. Wacker Drive, Chicago, Ill.*

Pedestrian Control and Protection.—Committee on Pedestrian Control and Protection. 26 pp. Free. Apply to the Council.

Containing facts on pedestrian accidents in addition to those presented in the 1938 report, this illustrated pamphlet gives recommendations for pedestrian control and protection from the point of view of engineering, education and enforcement.

Installing Tests for Intoxication.—Committee on Tests for Intoxication. 23 pp. Free. Apply to the Council.

Describes the use of test methods and the procedure for setting up a testing program.

Pedestrian Safety

The American Automobile Association has issued several publications giving suggestions for pedestrian safety campaigns. Any of these may be obtained from local AAA Motor Clubs or from the Safety & Traffic Engineering Department of the Association, Mills Building, Washington, D. C.:

Pedestrian "Shorts"

Terse items on the facts and principles of pedestrian safety, for use on the radio, in newspaper boxes, for magazine features, as points in pedestrian safety talks, for car cards, pay envelope reminders, etc.

Speaking for Pedestrian Protection

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Pedestrian Pointers—A Special Bulletin for Cities and States Entered in the National Pedestrian Protection Contest

Pedestrian Protection Features

Illustrations, cartoons, graphs, etc., available from the Association.

City Administration

Municipal Administration.—By John M. Pfiffner, Ph.D., Professor of Government, University of Southern California. A volume of the Political Science Series. The Ronald Press Co., New York. 1940. *xvi* + 582 *pp.* $4.00 *from* THE AMERICAN CITY.

The subject matter of this book is treated under the following eight main heads: I, Organization; II, Staff and Housekeeping Functions (research and management, finance, personnel); III, Protective Functions (police and the courts, traffic, fire, health); IV, Public Welfare (social service, institutional management); V, Physical Planning (including housing and municipal airports); VI, Public Works (engineering and streets, sanitation, water supply); VII, Public Utilities; VIII, Cultural Activities (Education, Parks and Recreation, Libraries, Museums, Music). The volume is designed as a textbook, and the Preface states: "Administrators and technicians will find reading fruitful only in those chapters containing subject matter to which they are themselves laymen."

Planning and the Citizen

Planning Needs the Man in the Street.—By Harold S. Buttenheim, Editor, THE AMERICAN CITY, *470 Fourth Ave., New York. Reprint from the Dec., 1939, issue of the "National Municipal Review." Apply to* THE AMERICAN CITY. 7 *pp.* 10*c.*

Why have there not been more citizens' planning groups? How can planning's importance to the average man be brought home to him? And how can planning gain public support?

Although this article gives an account of citizen planning organizations that have been successful, it suggests that public support of planning can best be obtained by stimulating interest in this subject on the part of citizen organizations having other major objectives, such as housing. It shows how the rapidly growing attention to the insistent problems of urban blight and slums is extending to an interest in the larger field of planning. Educational courses and the movies are discussed as other means of creating an understanding of the aims of planning. Finally, the importance of building better communities in the defense of democracy is pointed out.

USHA Program Critique

Public Housing and USHA.—Reprint from the January, 1940, *issue of The Architectural Forum, Time and Life Building, New York.* 12 *pp.* 15*c.*

Does the USHA program compete with private enterprise? Is the cost of the USHA program too high? Is USHA clearing slums? Are the standards of USHA projects too high? Are slum clearance and low-rent housing the proper functions of government? These are some of the vital and much discussed questions answered in this critical examination of the USHA program. Summary tables on number of projects, costs, etc., are included.

School Fires

1,000 *School Fires.—National Fire Protection Association, 60 Batterymarch St., Boston, Mass.* 1939. 72 *pp.* 35*c.*

School fires occur at the rate of seven a day in the United States and Canada.

What are the causes of these fires, and what can be done to prevent them, are questions that are discussed in this illustrated publication, which tabulates the experience of typical school fires, according to cause, type of building, kind of school, causes of loss of life, construction of buildings involved, loss per fire, room in which fire started, and effect of automatic sprinklers. A section is devoted to the subject of safety to life in school fires.

Finance

Municipal Finance.—By Frank A. Neff, Ph.D., Dean, College of Business, University of Wichita, Wichita, Kans. The McGuin Publishing Co., Wichita, Kans. 1939. *xii* + 330 *pp.* $3.00.

Expenditures, revenue, indebtedness, administration, finance, in foreign cities, are the subjects of the main chapters in this live, non-technical book—one of the few devoted entirely to this subject. It outlines the history and analyzes the philosophy of city finance and taxation, back to ancient Athens and Rome, but is concerned particularly with the growing problems of municipal finance since 1900. The subject is treated against the whole background of modern city and municipal government development.

Municipal Insurance

Municipal Insurance Costs and Practices—A Summary of Available Data.—By Hilliard B. Wilson. The American Municipal Association, 1313 E. 60th St., Chicago, Ill. 1939. 51 *pp.* $1.00.

"American municipalities, on the whole, are paying too much for insurance of municipal risks," concludes this report, which outlines suggestions for reducing these costs, as well as describing present practices and experiences in a sample group of cities. The types of insurance covered are fire and other property damage insurance carried on municipally owned buildings and their contents, public liability and theft insurance on municipally owned and operated motor equipment, robbery and burglary insurance carried on money and securities, and surety bonds for municipal officials and employees.

Assessing Officers Meeting

Proceedings of the Sixth National Conference on Assessment Administration.—National Association of Assessing Officers, 1313 E. 60th St., Chicago, Ill. 1940. 60 *pp.*

As reported here, principal talks given at the Conference on Assessment Administration held at San Francisco in October, 1939, include those on the organization of an assessment office, depreciation, Wisconsin's plan of supervision, legislation and court decisions, professionalization of public service. Round tables on timely topics are also reported—assessment of utility properties, public relations, rural assessment, central agency assistance, personal property and urban real estate problems. Finance officers attending the conference are listed.

Housing and Democracy

Homes—Front Line of Defense for American Life.—February issue of Survey Graphic, published by Survey Associates, Inc., 112 E. 19th St., New York. 100 pp. Single copy, 40c, 3 copies, $1.00.

How do good homes strengthen democracy, and how can America have good homes—this is the subject of the third in the "Calling America" series of special issues of the *Survey Graphic*, of which another was "The Challenge to Democracy," reviewed in the March issue of THE AMERICAN CITY last year. Nineteen authors, prominent in the housing field, discuss, with the aid of a striking collection of illustrations, questions at the heart of the housing problem in this country: Why is there a housing problem—why can't millions of Americans afford decent homes? And how does this affect every American? What is being done about it—by government, private industry and other interested groups? How solve the riddle of taxation in relation to housing? What about the back-to-the-country movement? What kind of homes for Americans in the future? (See excerpts from this notable issue on pages 58 and 63.

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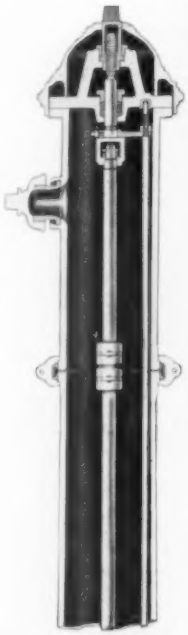

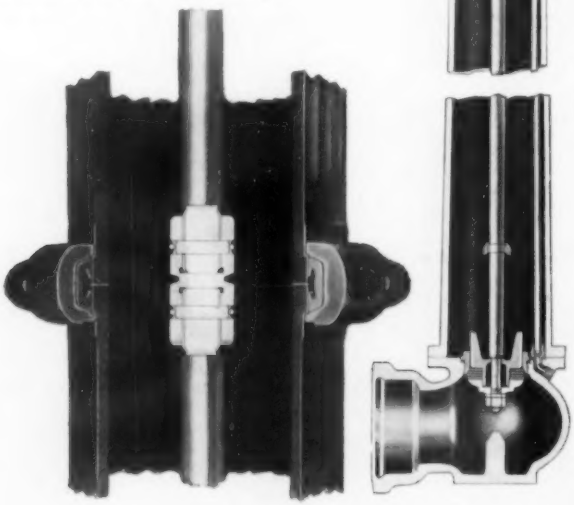

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Citizens' Housing Bulletin

Housing—Citizens' Housing Council of New York, Inc., 470 Fourth Ave., New York. First issue, January, 1940. 4 pp. Free to members; 10c to non-members.

This attractive, lively publication is the first issue of a bulletin to be published from time to time by the Citizens' Housing Council of New York, "to help reveal housing in the city in its entirety: as the sum of its parts—old and new housing, public and private housing, land, buildings and utilities; and as the product of many actions—planning, land assembly, design; financing, taxation, management." This number covers such current New York housing problems and activities as: the Council's part in New York's new bill for investment housing; areas for new housing indicated by the New York City Planning Commission; housing courses in New York educational institutions; a directory of New York housing projects, completed, under construction, and planned.

Public Housing

Public Housing in America.—Compiled by M. B. Schnapper. The H. W. Wilson Co., New York. 1939. 369 pp. 90c.

This book is valuable as a symposium presenting both sides of the housing problem under one cover. Like other publications in "The Reference Shelf" series, it consists of a collection of articles and briefs by authorities in the field, taken from current periodicals and other literature, and presenting, besides a general discussion, the affirmative and negative sides of the question it discusses—in this case, "Should we have public housing?" Extended references and a bibliography are included.

European and American Housing

Urban and Rural Housing—Economic Intelligence Service, League of Nations, Geneva, Switzerland. Apply to Columbia University Press, New York. 1939. xxvi + 159 pp. 80c.

Contained in this report is an account of the methods for improving housing conditions employed in a number of sample countries, with special reference to the cost involved and the results obtained. For Belgium, the United Kingdom, Canada, Denmark, Finland, France, the Netherlands, Norway, Sweden and the United States, facts and figures are given showing conditions of existing dwellings and the need of additional ones, the organization and activity of the private building industry, what the government has done to promote private building and its program of public housing. A general chapter discusses the causes of the housing shortage, causes of permanent sub-standard conditions, and financial questions.

Land Uses and Zoning

Urban Land Uses and Zoning, Des Moines, Iowa.—City Plan and Zoning Commission, Des Moines, Iowa. Harland Bartholomew and Associates, City Planning Consultants, St. Louis, Mo. Apply to the Commission. 1939. 48 pp. 25c.

Directed toward the citizen, this report contains a discussion of the city's zoning problems—investigates present and probable future land uses, points out inadequacies in the present zoning ordinance of Des Moines, adopted in 1926, and analyzes the proposed ordinance. The advantages of the right kind of zoning, for each person living in the city, are explained. The report is one of several comprising the revised Comprehensive City Plan, approved by the Commission in September, 1939.

Tree and Shrub Protection

Common Insects of Lawns, Ornamental Shrubs and Shade Trees.—By George S. Langford and Ernest N. Cory. Extension Service, University of Maryland, College Park, Md. 1939. 54 pp.

In this pamphlet, trees and shrubs are listed with the common insects which attack them. Insects are described, illustrated, and divided into types, with control methods for each type discussed. The pamphlet is meant for layman consumption, and is written in non-technical language.

Public Food Control

Food Control—Its Public-Health Aspects—A Manual for Regulatory Officers, Food Technologists, and Students of the Food Industry.—By James Houston Shrader, Ph.D., Formerly Director, Bureau of Chemistry and Food, Baltimore Health Department. John Wiley & Sons, Inc., New York. 1939. ix+513 pp. $4.00 from THE AMERICAN CITY.

This book gives general comprehensive information on food control—why it is necessary, what industrial practices are concerned in such control, and how control measures are applied. Problems and principles of food control, technology, relation of food to the public health, and control measures are discussed. Individual chapters are devoted to the technology, relation to the public health and regulatory control, of each of the classes of food which has any relation to public health: Milk; Ice Cream; Butter; Cheese; Other Dairy Products; Meat; Poultry; Eggs; Fishery Products; Cereals and Bakery Products; Fresh Fruits and Vegetables; Preserved Foods.

Recreation Training

Training for Recreation.—By Dorothy I. Cline, Former Training Consultant, Division of Recreation, WPA. Apply to The University of Chicago Press, 5750 Ellis Ave., Chicago, Ill. 1939. 130 pp. Free.

An account of the in-service training program in the Division of Recreation of the WPA, this monograph will also serve as a handbook for anyone interested in the principles and practices of recreation training, or indeed of training in the general field of public administration. An account is given of the WPA recreation program and its administration. Training methods are discussed. Aids to training—such as printed material, radio, films, demonstrations—are described. Two chapters are devoted to the growth of leisure and its future place in the national life.

Traffic Obstructions

Survey of Traffic Obstructions.—Division of Professional and Service Projects, Federal Works Agency, Work Projects Administration, Washington, D. C. 1939. 40 pp.

One of the most serious causes of traffic deaths and injuries is the fixed object with which motor vehicles collide, or which in some more indirect way is responsible for accidents. Outlined in this publication is a suggested technical procedure for locating and recording obstructions to vehicular and pedestrian traffic in any community, and recommendations for making improvements. It contains instructions to project supervisors, and detailed instructions for use of the survey staff.

Traffic Counts

Milwaukee on the Go.—Compiled and mapped by Charles E. Bennett, City Planner, for the Board of Public Land Commissioners, Milwaukee, Wis. Apply to The Milwaukee Journal, Milwaukee. 1940. 52 pp.

Consisting entirely of maps, diagrams, tables and graphs, this compact publication shows the vehicular and pedestrian traffic movements into and out of local business districts in Milwaukee on a typical week day and for each hour of such a day; the pedestrian movement and commercial uses on principal streets in these districts; and assessed valuation of land and improvements for individual blocks, from 1917 to 1940. Hourly movement of persons in and out of some of Milwaukee's principal buildings and stores is also pictured.

Washington Fire Prevention

Report of Fire Survey Board on Consolidation of the District of Columbia Fire Stations, and Supplementary Report.—Fire Survey Board, Washington, D. C. 1939. 134 pp. and 18 pp., respectively.

Included in this study of the possible relocations, consolidations and eliminations of fire stations in Washington, and the economies which these measures would effect, are reports on findings on the adequacy of existing fire defenses, statistical comparisons with other cities, wages and hours, and reports of other associations on Washington's fire-prevention facilities. Recommendations are made. Tables and maps are included.

Freedom of Speech and Press

The National Institute of Municipal Law Officers, 730 Jackson Place, N. W., Washington, D. C., has published the opinion of City Attorney Harry E. Weinberg of Duluth, on the validity of handbill ordinances in the light of the recent important decisions of the Supreme Court of the United States on this subject (see p. 109 of the Jan., 1940, issue, of THE AMERICAN CITY). It contains also an ordinance recommended for adoption by Duluth to replace regulations similar to those invalidated in the Supreme Court decisions.

Business and Industrial Development

Kalamazoo—The Debt-Free City.—By Ford F. Rowe, Kalamazoo, Mich. 1940. 75c.

A comprehensive, illustrated description of Kalamazoo—its history, financial condition, business and industry, civic and commercial associations, city government and municipal facilities, educational and recreational facilities, hospitals, and general characteristics as a business and industrial center. On each page, short side-notes on miscellaneous subjects of interest reflect the color and spirit of the community.

Recreation Survey

Public Recreation in the City of Cleveland: Volume I—Selected Articles on Recreation in Cleveland; Volume II—Part I, East Side Neighborhoods; Part II, West Side Neighborhoods. Department of Parks and Public Property, Cleveland, Ohio. 1940. iv + 110 pp., v + 179 pp. vii + 114 pp., respectively.

Articles in the first volume of this survey of recreation in Cleveland cover what has been done in the past in this field, particularly developments in the city in the last four years. It not only discusses general progress, but describes particular projects, such as craft programs and Cleveland's "Boystowns." The two parts of the second volume diagnose in detail the recreation needs in the eighteen neighborhoods into which the city was divided. Recommendations are made for each neighborhood, after an examination of the following: general characteristics of the neighborhood; existing park and recreational facilities; transportation facilities and traffic conditions; housing, business and industrial conditions; population and nationalities; schools; juvenile delinquency; trends in the neighborhood. The third volume will contain recommendations for a comprehensive recreation program for the city of Cleveland.

Other Reports Received

CHICAGO, ILL.—Activities and Purposes of the Chicago Recreation Commission—Annual Report, 1939. 16 pp.

—Annual Report, Department of Streets and Electricity, Bureau of Electricity, 1938. 39 pp.

KALAMAZOO, MICH.—Your City and Its Government—A Twenty-Year Story of City Manager Government, 1918-1938. 39 pp.

MEMPHIS, TENN.—Annual Report, Municipal Reference Library, Dept. of Public Service, 1939. 5 pp.

MONTCLAIR, NEW JERSEY.—Annual Report, Town Planning Board, 1939. 6 pp.

NEW YORK, N. Y.—Annual Report, Department of Public Works, 1938. 88 pp.

PHILADELPHIA, PA.—A. S. T. M. Standards on Rubber Products. Committee D-11 on Rubber Products, American Society for Testing Materials, 260 S. Broad St. 210 pp.

SYDNEY, NEW SOUTH WALES, AUSTRALIA.—Report of the Department of Works and Local Government, 1938. 108 pp.

WASHINGTON, D. C.—Annual Report, The Alley Dwelling Authority for the District of Columbia, year ended June 30, 1939. 34 + xi pp.

—Annual Report, Federal Bureau of Investigation, United States Department of Justice, year ended June 30, 1939. 32 pp.

—Questions and Answers on the WPA. Federal Works Agency, Work Projects Administration. 26 pp. Free.

TRUCK BUYERS KNOW TRUCK VALUES

...and when the truck buyers of the nation purchase more Chevrolets than any other make—*that means*

"It pays to buy Chevrolets!"

"Best Haulers—Best Savers—Best Sellers" in the entire truck field. That's Chevrolet trucks! And the fact that they're the *"best sellers"*—the fact that truck users buy *more Chevrolet trucks* than any other make—is conclusive proof that Chevrolets give better haulage service at lower cost! Truck users *know* that Chevrolet's extra-sturdy truck chassis and extra-sturdy truck units throughout mean greater endurance and longer life! Truck users *know* that Chevrolet's famous Valve-in-Head Six-Cylinder Truck Engine gives the maximum pulling power at the minimum cost! And truck users *know* that the nation's preference for Chevrolets is the buyer's guarantee of their greater dollar value. Take the doubt out of truck buying this year—profit by the combined experience of the truck buyers of the nation—choose Chevrolet trucks! Your Chevrolet dealer will be glad to give you a thorough demonstration—*today!*

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CHEVROLET

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Conventions - - When and Where

Meeting is annual convention unless otherwise designated

FEBRUARY 14-16.—ATLANTIC CITY, N. J.
Association of Highway Officials of North Atlantic States. (Hotel Ambassador.) Sec.-Treas., A. Lee Grover, State Highway Dept., Trenton, N. J.

FEBRUARY 14-16.—ANN ARBOR, MICH.
Conference on Highway Engineering. (Michigan Union.) Sec., R. E. Morrison, Univ. of Michigan, Ann Arbor, Mich.

FEBRUARY 16.—PITMAN, N. J.
South Jersey Association of Water Superintendents. Bi-monthly meeting. (Municipal Bldg.) Sec., Walter Spencer, 2707 Bethel Ave., Merchantsville, N. J.

FEBRUARY 19-23.—COLLEGE STATION, TEXAS.
Texas Water Works Short School. (Texas A. & M. College.) Sec., V. M. Ehlers, Austin, Texas.

FEBRUARY 20-23.—WICHITA, KANS.
Southwest Road Show and School. (Municipal Bldg.) Mgr., F. G. Wieland, 225 S. Water St., Wichita, Kans.

FEBRUARY 24-29.—ST. LOUIS, MO.
American Association of School Administrators. (Municipal Auditorium.) Sec., S. D. Shankland, 1201 16th St., N. W., Washington, D. C.

FEBRUARY 27-29.—CHICAGO, ILL.
American Concrete Institute. (Palmer House.) Sec., Harvey Whipple, 7400 Second Blvd., Detroit, Mich.

MARCH 8-9.—BIRMINGHAM, ALA.
United States Conference of Mayors. Southern Regional Conference. Exec. Dir., Paul V. Betters, 730 Jackson Place, N. W., Washington, D. C.

MARCH 18-20.—BIRMINGHAM, ALA.
American Water Works Association—Southeastern Section. (Thomas-Jefferson Hotel.) Sec., B. P. Rice, Room 425, State Office Bldg., Columbia, S. C.

MARCH 20-22.—TRENTON, N. J.
New Jersey Sewage Works Association. (Stacy-Trent Hotel.) Sec., John R. Downes, Bound Brook, N. J.

MARCH 27-29.—LONDON, ONT.
American Water Works Association—Canadian Section. (Hotel London.) Sec.-Treas., Dr. A. E. Berry, Dept. of Health, Toronto, Ontario.

APRIL 4-5.—LAFAYETTE, IND.
American Water Works Association—Indiana Section. (Purdue Univ.) Sec., H. G. Horstman, 603 Traction Terminal Bldg., Indianapolis, Ind.

APRIL 5-6.—MILES CITY, MONT.
American Water Works Association—Montana Section. (New Milligan Hotel.) Sec., Herbert B. Foote, State Board of Health, Helena, Mont.

APRIL 10-13.—HOUSTON, TEXAS.
National Association of County Officials. (Rice Hotel.) Sec.-Treas., George F. Breitbach, Court-House, Milwaukee, Wis.

APRIL 15-17.—FAYETTEVILLE, ARK.
Arkansas Water and Sewage Works Conference. (Univ. of Arkansas.) Sec., Harrison Hale, Univ. of Arkansas, Fayetteville, Ark.

APRIL 17-19.—EXCELSIOR SPRINGS, MO.
Missouri Association of Public Utilities. (Elms Hotel.) Asst. Sec., Jesse Blythe, 101 W. High St., Jefferson City, Mo.

APRIL 21-25.—KANSAS CITY, MO.
American Water Works Association. (Hotels Phillips, President and Muehlebach.) Sec., Harry E. Jordan, 22 E. 40th St., New York.

APRIL 30-MAY 2.—WASHINGTON, D. C.
Chamber of Commerce of the United States. Sec., Ralph Bradford, 1615 H St., N. W., Washington, D. C.

MAY 8-11.—ATLANTIC CITY, N. J.
National Fire Protection Association. (Haddon Hall.) M'ng Dir., Percy Bugbee, 60 Batterymarch St., Boston, Mass.

MAY 9-10.—AKRON, OHIO.
American Water Works Association—Ohio Section. (Mayflower Hotel.) Sec., T. R. Lathrop, State Dept. of Health, Columbus, Ohio.

MAY 9-11.—PORTLAND, ORE.
American Water Works Association—Pacific Northwest Section. (Portland Hotel.) Sec., Fred Merryfield, Oregon State College, Corvallis, Ore.

MAY 13-17.—PITTSBURGH, PA.
National Association of Housing Officials. (William Penn Hotel.) *Annual meeting*, 15-17, preceded by Managers' Div., 13-14. Sec., Coleman Woodbury, 1313 E. 60th St., Chicago, Ill.

MAY 16-18.—Place later.
American Water Works Association—Florida Section. Sec., A. P. Black, Univ. of Florida, Gainesville, Fla.

MAY 16-17.—SALISBURY, MD.
Maryland-Delaware Water and Sewerage Association. (Wicomico Hotel.) Sec., A. W. Blohm, 2411 N. Charles Street, Baltimore, Maryland.

MAY 21-24.—ST. LOUIS, MO.
Smoke Prevention Association. Sec., Frank A. Chambers, City Hall Square Bldg., Chicago, Illinois.

MAY 22-24.—CHICAGO, ILL.
American Water Works Association—Illinois Section. (Congress Hotel.) Sec., H. E. Hudson, Jr., 6843 Oglesby Ave., Chicago, Ill.

MAY 23-24.—EVERETT, WASH.
Association of Washington Cities. (Monte Cristo Hotel.) Exec. Sec., Chester Biesen, Univ. of Washington, Seattle, Wash.

MAY 23-25.—WILMINGTON, DEL.
Eastern Association of Fire Chiefs. (Hotel du Pont.) Sec., Charles E. Clark, Box 217, Wayne, Pa.

MAY 23-24.—SEASIDE, ORE.
League of Oregon Cities. (Hotel Seaside.) Sec., Herman Kehrli, Univ. of Oregon, Eugene, Oregon.

JUNE.—ROCHESTER, N. Y. (Date later.)
Conference of Mayors and Other Municipal Officials of the State of New York. Exec. Sec., William P. Capes, City Hall, Albany, N. Y.

JUNE 5-6.—ST. LOUIS, MO.
Building Officials' Conference of America. (Hotel Jefferson.) Sec.-Treas., William F. Hurd, Commissioner of Bldgs., Indianapolis, Ind.

JUNE 6-7.—ITHACA, N. Y.
American Water Works Association—New York Section. (Hotel Ithaca.) Sec., R. K. Blanchard, 50 W. 50th St., New York.

JUNE 24-28.—SWAMPSCOTT, MASS.
American Institute of Electrical Engineers. (New Ocean House.) Nat'l Sec., H. H. Henline, 33 W. 39th St., New York.

JUNE 24-26.—STATE COLLEGE, PA.
Pennsylvania State Association of Boroughs. (Nittany Lion Hotel.) Pres., Thomas F. Chrostwaite, Hanover, Pa.

JUNE 24-28.—STATE COLLEGE, PA.
Pennsylvania Water Works Operators' Association. Sec.-Treas., I. M. Glace, 22 S. 22d St., Harrisburg, Pa.

JUNE 26-28.—STATE COLLEGE, PA.
Pennsylvania Sewage Works Association. (State College Campus and Nittany Lion Hotel.) Sec., L. D. Matter, Kirby Health Center, Wilkes-Barre, Pa.

JUNE 30-JULY 4—MILWAUKEE, WIS.
National Education Association of the United States. Exec. Sec., Willard E. Givens, 1201 16th St., N. W., Washington, D. C.

JULY 8-12.—SAN FRANCISCO, CALIF.
National Conference on Planning. Joint annual conference of American Society of Planning Officials, American Institute of Planners, the American Planning and Civic Association, and the National Economic and Social Planning Association. Conference Dir., Walter H. Blucher, 1313 E. 60th St., Chicago, Ill.

JULY 23-25.—NEW YORK CITY.
New York State Association of Chiefs of Police. (Hotel Astor.) Sec.-Treas., R. W. Morris, P. O. Box 346, Geneva, N. Y.

JULY 23-25.—WILLIAMSPORT, PA.
Pennsylvania Chiefs of Police Association. (Lycoming Hotel.) Sec., F. B. Titus, Lansdowne, Pa.

AUGUST 18-24.—EVANSTON, ILL.
National Institute for Commercial and Trade Organization Executives. (Northwestern Univ.) Sec., C. R. Miles, 832 First National Bank Bldg., Chicago, Ill.

AUGUST 22-24.—LOGAN CITY, UTAH.
State Municipal League of Utah. (Eccles Hotel.) Sec., Tom McCoy, Public Safety Bldg., Salt Lake City, Utah.

AUGUST 27-30.—DETROIT, MICH.
National Shade Tree Conference. (Book-Cadillac Hotel.) Sec.-Treas., L. C. Chadwick, Ohio State Univ., Columbus, Ohio.

SEPTEMBER 9-12.—SPRING LAKE, N. J.
Illuminating Engineering Society. (The Essex and Sussex Hotel.) Gen. Sec., A. D. Cameron, 51 Madison Ave., New York.

SEPTEMBER 9-12.—MILWAUKEE, WIS.
International Association of Chiefs of Police. (Hotel Schroeder.) Exec. Vice-Pres., William P. Rutledge, 1313 E. 60th St., Chicago, Ill.

SEPTEMBER 11-13.—ANN ARBOR, MICH.
American Water Works Association—Michigan Section. (Michigan Union.) Sec., M. N. Gerardy, Water Board Bldg., Detroit, Mich.

SEPTEMBER 16-20.—DUBUQUE, IOWA.
International Association of Fire Fighters. (Julian Hotel.) Sec.-Treas., George J. Richardson, A. F. of L. Bldg., Washington, D. C.

SEPTEMBER 22-24.—ROANOKE, VA.
League of Virginia Municipalities. (Hotel Roanoke.) Exec. Sec., Morton L. Wallerstein, 902 Travelers Bldg., Richmond, Va.

SEPTEMBER 24-27.—NEW YORK CITY.
New England Water Works Association. (Hotel Commodore.) Sec., Frank J. Gifford, 613 Statler Bldg., Boston, Mass.

SEPTEMBER 26-27.—WILMINGTON, DEL.
American Water Works Association—Four States Section. Sec.-Treas., Carl A. Hechmer, Washington Suburban Sanitary Dist., Hyattsville, Md.

OCTOBER 7-11.—CHICAGO, ILL.
National Safety Council. (Stevens Hotel.) M'ng Dir., W. H. Cameron, 20 N. Wacker Drive., Chicago, Ill.

OCTOBER 8-11.—DETROIT, MICH.
American Public Works Association. Exec. Dir., Frank W. Herring, 1313 E. 60th St., Chicago, Ill.

OCTOBER 14-17.—TULSA, OKLA.
American Water Works Association—Southwest Section. Sec., Lewis A. Quigley, 3320 W. Berry St., Fort Worth, Texas.

OCTOBER 14-17.—JACKSONVILLE, FLA.
International Municipal Signal Association, Inc. (George Washington Hotel.) Sec., Irvin Shulsinger, 8 E. 41st St., New York.

OCTOBER 14-18.—DETROIT, MICH.
National Association of Public School Business Officials. (Book-Cadillac Hotel.) Sec., H. W. Cramblet, Board of Education, Pittsburgh, Pa.

OCTOBER 23-25.—LEXINGTON, KY.
American Water Works Association, Kentucky-Tennessee Section. Sec.-Treas., Howard D. Schmidt, 420 6th Ave., N., Nashville, Tenn.

NOVEMBER 7-8.—ST. PAUL, MINN.
American Water Works Association—Minnesota Section. (Hotel Lowry.) Sec.-Treas., Ronald M. Finch, Wallace & Tiernan Co., Inc., 414 Flour Exchange, Minneapolis, Minn.

In just 2 years,
30 Louisiana towns have placed 1,457,000 square yards of CONCRETE STREETS

(*Top*) Lake Shore Drive in New Orleans. A total of 467,796 sq. yds. of concrete built in this city in the past two years.

(*Center*) Residential Lawrence Street, Lake Charles, La., paved with concrete in 1938. Total of 154,582 sq. yds. built in past two years.

(*Lower*) First Street in Morgan City, La., which built 40,950 sq. yds. of concrete in past two years.

DURING 1938 and 1939, 30 Louisiana communities, ranging in size from less than 2500 population to metropolitan New Orleans, placed enough concrete to pave 83 miles of streets 30 feet wide.

That's a lot of activity—and it will bring a lot of satisfaction. For concrete streets are a gilt-edge investment for any city. They're comfortable to drive on . . . they permit traffic to flow more readily . . . they increase business or residential property values . . . they save lives because they are skid-resistant in wet weather or dry.

For a given load-carrying capacity, concrete is a low cost pavement to build, and it is by far the *cheapest* of all pavements to maintain.

Get extra service and extra savings by designing your city's streets for concrete.

PORTLAND CEMENT ASSOCIATION
Dept. 2-4, 33 W. Grand Ave., Chicago, Ill.

A national organization to improve and extend the uses of concrete . . . through scientific research and engineering field work.

Do you mention THE AMERICAN CITY? Please do.

News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

The Meili-Blumberg Traffic Line Marker Being Used as a Utility Paint Sprayer

A Traffic Line Marker and Paint Sprayer

A new dual utility tool of particular interest to street and park superintendents has been announced by Meili-Blumberg Corporation, New Holstein, Wis., in the M-B traffic line marker and all-purpose paint sprayer. The machine consists of an air compressor driven by a small single-cylinder gas engine furnishing the pressure for the spray. The paint, which is contained in an enclosed tank, is applied by an external atomizing type spray gun which has a wide range of adjustment.

Two types of this machine are available, hand or self-propelled models. Either one will put down traffic lines from 3 to 6 inches wide at the rate of 15,000 feet per hour. Where the work involved is limited more or less to center lining, the self-propelled unit is preferable. The fact that it travels constantly at a predetermined speed permits a greater amount of work to be accomplished. Since the speed is constant, the quality of the line is more even than might be the case with the hand-propelled unit, where the speed of the marker may be varied considerably.

Both the power-propelled and hand-propelled models are 49 inches long, 27 inches wide and 38 inches high, and carry a 10-gallon tank.

Booklet on Tarmac Street Construction

A new illustrated booklet on Tarmac street construction and maintenance has just been issued by Koppers Co., Tar and Chemical Division, Pittsburgh, Pa. The booklet contains descriptions of applications and construction steps for prime coating, double surface treatments, retreatments and seal coats on bituminous surfaces, double surface treatments on sheet asphalt, bituminous concrete, cement-concrete or brick, drag leveling coarse road-mix of the graded aggregate and coarse aggregate types, mulch treatment, penetration pavement, soil stabilization, E-Z mix method and patching.

There are also tables of grades and uses and a list of suggestions for the proper laying of Tarmac paving. Illustrations in the booklet show steps in various types of Tarmac pavement construction and resurfacing of other materials. Copies of this booklet will be sent free to readers of The American City on request.

New Division Manager for Worthington Pumps

The Worthington Pump and Machinery Corporation, Harrison, N. J., has announced the appointment of Harold W. Stoddart as Manager of its Turbine Well Pump Division. Mr. Stoddart is a graduate of Iowa State College, 1919, joining the Worthington organization immediately after graduation, and has been closely allied with the manufacture of turbine well pumps since 1921. From 1932 to 1935 he was Engineer in Charge of Turbine Well Pumps, and at the end of that period he was appointed Special Representative in charge of Turbine Well Pump sales. Since the early part of 1939 he has served in the capacity of Assisatnt Manager of the Turbine Well Pump Division.

Harold W. Stoddart Now with Worthington

Special Manhole Gasket Stops Cover Rattles

A manhole cushion or gasket made of 3-ply asbestos with woven-wire reinforcement and pre-formed to fit manhole flanges, has been announced by the Turbine Sewer Machine Co., 52nd and W. State Sts., Milwaukee, Wis. It is claimed that these rings may be installed quickly by any laborer and stop the rattle immediately.

In installing the Tuff-Ring manhole cushion it is only necessary to remove the cover, clean the flange thoroughly, moisten the black side of the cushion with the bonding fluid, and then replace the cushion with black side down on the flange. If the Tuff-Ring manhole cushion is placed uniformly and the cover put on carefully, traffic may cross it at once.

Installing a Tuff-Ring Manhole Cushion, Showing, Left to Right, Opening the Manhole, Cleaning the Flange, Treating the Gasket with the Bonding Fluid, and Laying in the Gasket on the Flange of the Casting

"Imagine—ME talking about valve seat inserts!"

It is last summer, and here we are at the store picnic—about 100 of us girls. When all of a sudden, right after the peanut race, somebody yells—"Here comes the eats!" And sure enough, here they come—a whole truck-load of 'em, that pulls right up back of where Betty and Pearl and me are sitting on a bench.

Well, Betty is right in the midst of telling Pearl and me about what happened the other night at the casino, when the fellow that is driving this truck with the eats in it gets out and says kind of with a whistle—

"Boy, what a honey!"

Well, you could have cut the silence with an ice pick.

"Imagine that fresh guy," I says. "Let's just ignore him."

So Betty and Pearl they do just that, wandering away very hoity-toity.

But me, I didn't think it would do any harm to see what the guy looks like, anyway. So, with a stern frown on my face, I turn around. Just in time to hear him say—

"The sweetest job I ever saw in my life!"

So, instead of frowning, I *glare*, expecting to shrivel this masher once and for all.

And, I tell you, I got the shock of my life!

He wasn't looking my way at all! He was standing with his elbows on the front end of this truck of his, mooning like a love-sick calf! Can you feature that!

"Well, how about unloading some sandwiches?" I asks.

"Hello," he says, like he's in a fog. He wasn't so bad-looking.

"Ain't she a dream?" he says.

"Who?" I asks, innocent.

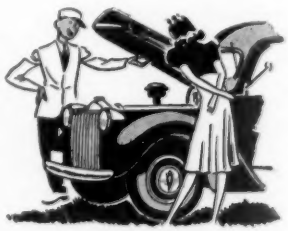
"That Ford," he goes on, looking at me like I was about as important as a can of hominy.

"Sweet runnin', quiet, comfortable, and the easiest job on gas and oil I ever drove. Come here once and just give this V-8 engine the double-O."

And before I knew it he had me by the hand and we were lookin' under the hood of that precious truck of his.

"Look at that engine," he says. "Tungsten steel inserts in every valve port, intake and exhaust."

"Wonderful," I says. And me not knowing a valve seat insert from a crepe suzette.



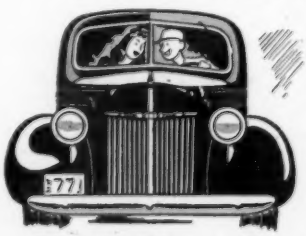
"Built for low-cost running, that's what I like. I've had trucks before, but, Sister, this Ford takes the cake."

"And I'll take a sandwich," I put in for a hint. But he didn't hear.

"Not only economical, but she's got power along with it. Flattens out hills like a bird. And she's as fast as Joe Louis' left hook. And besides, ain't she a *handsome* baby?"

This time I was *hoping* he meant me. But he didn't. So I saw I had to do something—and fast.

"I bet you wouldn't like to take a girl for a ride in that truck of yours, would you?" I asks, kind of twisting my toe in the ground.

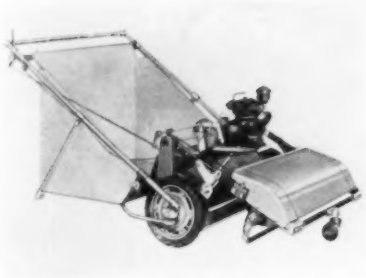


"I sure would," he said, not letting go of my hand on account of I was holding his too tight, if you know what I mean. "Two can ride as cheap as one in this truck."

Well, that's how it all started. I think Ford Trucks are wonderful, too, now—just like Joe does.

FORD V·8 TRUCKS *and Commercial Cars*

Ford Motor Company, Builders of Ford V-8 and Mercury Cars, Ford Trucks, Commercial Cars, Station Wagons and Transit Buses



The Springfield Power Lawn Sweeper and Weed Clipper

Power-Driven Lawn Sweeper with Weed Clipper

It is axiomatic that if you get rid of weed seeds, then you are rid of the weed. The Springfield power sweeper, which is equipped with a forward weed clipper, tops the weeds, and cuts off the seed pods, and the revolving brush immediately behind sweeps them into the collecting basket. Many park superintendents and caretakers of municipal lawns have been surprised at the foul weed seed thus collected, which may be destroyed by burning.

This sweeper is 36 inches wide with a 12-inch diameter brush reel containing six individual brushes. The reel spiders to which the brushes are attached permit quick and easy replacement of the brushes, and the reel itself is equipped with roller bearings and is adjustable for close or light sweeping. The brushes are made of tough, durable Bassine fiber, and the collecting hopper is of heavy canvas with a metal bottom. The control handle is adjustable to suit the operator. The front hood is adjustable for brushing-in top-dressing, fertilizer, etc. The net weight of the sweeper is 205 pounds, and the shipping weight is 250 pounds. The Moto-Mower Company of Detroit, Mich., are sole selling agents for the Springfield Lawn Sweeper.

New Booklet on Airport Drainage

A 15-page bulletin on airport drainage has recently been issued by Clay Products Association, 111 West Washington Street, Chicago, Ill., which is now available to municipal officials without cost. It summarizes sub-soil drainage methods for airports, and since this is the major construction problem at practically all airports, this booklet is of exceptional value.

The booklet is divided into short well-prepared articles on the need for airport drainage, planning airport drainage, the sub-soil drainage problem as a whole, and methods of installing sub-drains, as well as surface drainage for airports. Graphs for the determination of the proper size of salt-glazed vitrified clay sewer pipe and drainage tile for specific drainage problems are a great help in quick computation.

Oxygen Breathing Unit Carried on User's Back

A new one-hour back-type model of oxygen breathing apparatus has been announced by Mine Safety Appliances Co., Braddock, Thomas and Meade Streets, Pittsburgh, Pa. Employing the same principles of operation as the well-known front-type one-hour oxygen breathing apparatus produced by this company, the new back-type model supplies protection for an equal period but differs in cover and harness arrangement, being carried on the wearer's back by comfortable wide web straps and protected by a strongly reinforced aluminum cover.

Furnished with either a mouthpiece or a full-face piece, this new model will find favor wherever use of the regular front-carry machine is hampered by special conditions requiring work in prone or stooping positions. The new back-type apparatus weighs 24 pounds complete and is described in Bulletin No. BM-2.

Douglas Promoted by Universal Atlas Cement

Formerly the special New York representative of Universal Atlas Cement Co., Findlay S. Douglas was recently appointed Assistant to the President of that company.

When Mr. Douglas first came to the United States from his native Scotland, he was associated with the Post and McCord Co. He was later manager of motor and generator sales of Sprague Electric Co., a position which he left to join the Universal Atlas Cement Co., of 135 East 42nd St., New York.

New Plant Site Bought by Pennsylvania Salt

Announcement has been made by the Pennsylvania Salt Mfg. Co. of the purchase of a new plant site at Cornwells Heights, Pa. This new plant will replace the present Philadelphia operations at Delaware and Oregon Avenues, where the company has been located for the past 72 years. The new site gives a 2,000-foot water frontage and, according to a statement issued by the company, will provide greater production facilities.

The research laboratory and pilot plant operations will be removed to the new site, but the executive, accounting and sales offices will remain in the Widener Building, Philadelphia, Pa.

Executive Offices Move

Announcement has been made by the Wailes Dove-Hermiston Corp. that its executive offices will be moved from New York City to the company's plant in Westfield, N. J., on February 10. Linden Stuart, President, and W. H. T. Thornhill, Vice-President in Charge of Sales, will be located at the Westfield plant, while George E. Boyd and M. F. Abrams of the New York District Sales Office will continue to be located at 17 Battery Place, New York.

"Now that we use a

SMITH COMPRESSOR

--results are better,

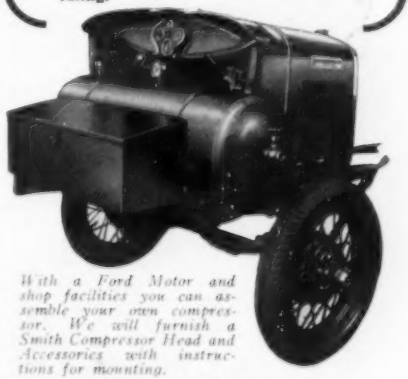
COSTS FAR LESS"

Use this lightweight, portable compressor - expect remarkable results

Think of the saving you'll enjoy with a Smith Compressor, MADE FROM FORD PARTS, that uses only one gallon of gasoline an hour—that is priced at LESS THAN HALF the cost of standard compressors of equal capacity!

Use it for finishing work on slopes, testing and repairing joints in concrete pavements, sub-drainage and sewer work and for a wide variety of general maintenance work. There's ample power to operate rock drills, paving breakers, tampers, sand blasts, rivet hammers, spades, picks, carving tools, metallizing guns, paint guns, etc.

60 cu. ft. a minute capacity; pressure up to 175 lbs. a square inch. Head equipped with high speed compressor valves; automatic unloading and idling.



With a Ford Motor and shop facilities you can assemble your own compressor. We will furnish a Smith Compressor Head and Accessories with instructions for mounting.

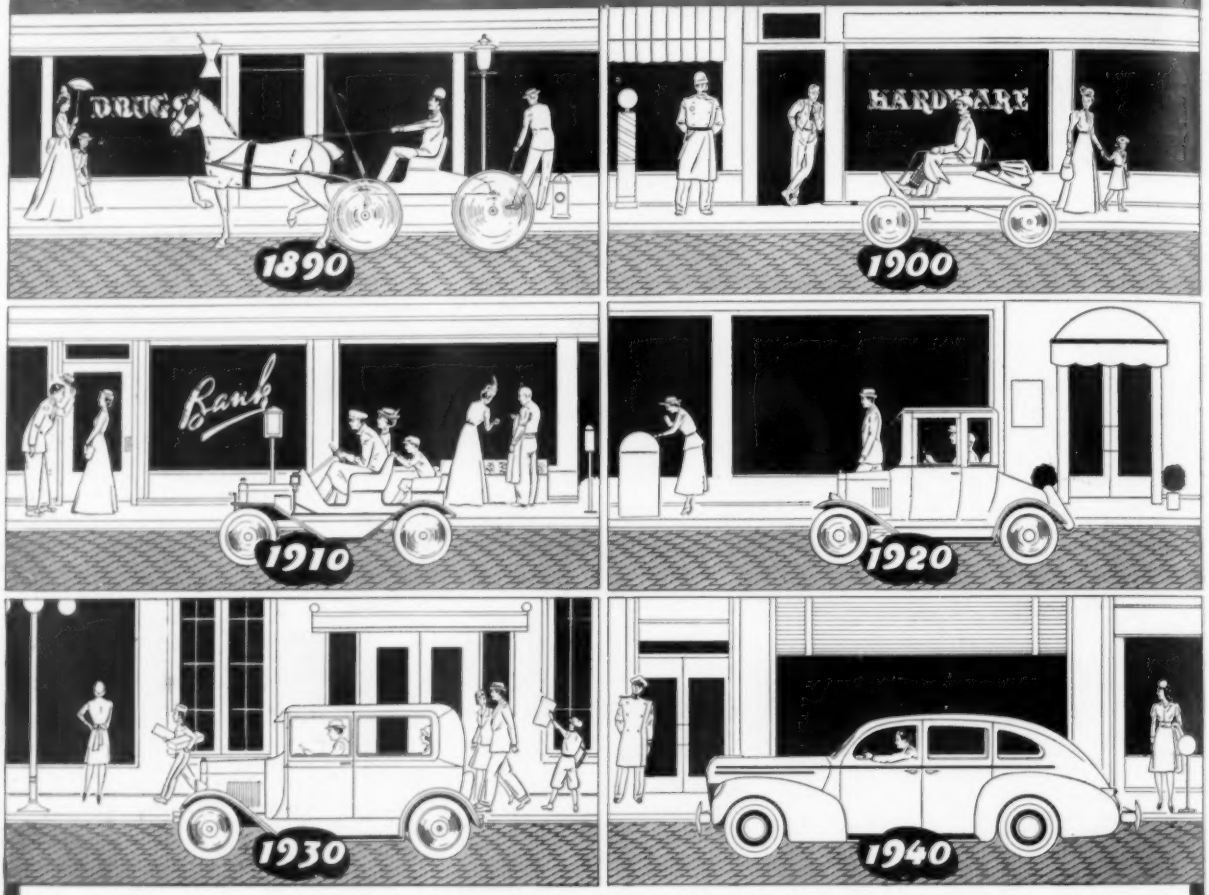
Write Today!

GORDON SMITH & CO.

425 College St., Bowling Green, Ky.

The pavement with the

LOWEST COST PER YEAR OF SERVICE



● Some brick pavements built in the 90's are still giving satisfactory service today. No other type of pavement has so long a life! Brick's maintenance cost is usually negligible—often nil. . . . The reason for brick's long life and low cost per year of service is because it resists weather damage as well as traffic damage. Moisture does not enter the brick to freeze and destroy. . . . Built according to modern methods brick serves high speed traffic and heavy vehicles at a minimum cost. National Paving Brick Association, National Press Bldg., Washington, D. C.

BRICK

FOR NEW CONSTRUCTION OR RESURFACE WORK

During February we hope you will remember to mention THE AMERICAN CITY.

One of the Newest Power Sprayers Made by The Friend Mfg. Co., Gasport, N. Y., in Action Protecting a Shade Tree from Insect Pests

Pipe Lining Process Sold by Gillespie

The process patents and interests, which cover the centrifugal method for lining the interior of steel and cast iron water mains in the ground with a cement mortar, and which have been used successfully by T. A. Gillespie Co., 7 Dey Street, New York, have been taken over by the Centriline Corporation, a new company, located at 90 West Street, New York, in which the Gillespie Co., Lock Joint Pipe Co., and Raymond Concrete Pipe Co. are interested.

In the announcement of this arrangement, it is stated that this process, which is designed for the reconditioning of old mains, and for which there has been an increased demand also in new pipe installations, can be better adapted and fostered in the water-works field by the broader representation and greater facilities of the new company, of which H. Seaver Jones is President. Mr. Jones was formerly Vice-President of T. A. Gillespie Co.

A New Catalog on Kennedy Valves

The Kennedy Valve Manufacturing Co., Elmira, N. Y., has recently published its Bulletin 59, giving a very complete description with illustrations as well as an unusual sectional view of Kennedy A. W. W. A. water gate-valves. These valves are built with iron bodies, bronze-mounted double discs and parallel seats for working pressures up to 150 pounds per square inch, and in sizes from 3- to 48-inch. The stem and stem nut of these valves are of manganese bronze with a minimum tensile strength of 60,000 pounds per square inch in sizes 24 inches and smaller, and 80,000 pounds per square inch in sizes 30 inches and larger. Copies of the Bulletin will be sent free on request to interested municipal officials who write direct to the manufacturer and mention THE AMERICAN CITY.

Radio Receivers for La Guardia Airport

A total of 15 Western Electric radio receivers, interference-free to a degree unprecedented in aviation radio, have been installed at La Guardia Field, New York City's new municipal airport. In the control tower of this air terminal are special receivers which, in the absence of a signal, remain dead. As soon, however, as the carrier wave from the plane's transmitter comes in, the receiver "comes to life." This is done by an automatic device known as "Codan."

Day and night channels are assigned to each of the air lines using the field, and one receiver is constantly tuned to 4495 KC, the frequency for Army aircraft. The voices of private fliers come in over a daytime frequency of 3105 KC and a night-time frequency of 6210 KC. The two additional receivers are maintained as emergency spares, with the possibility that additional channels will be allocated to them in the future.

These receivers are similar to those employed at many of the Bell System's coastal radio-telephone stations, which serve vessels operating off the Atlantic and Pacific seaboards and in the waters of the Gulf.

The receivers and antennas for New York's municipal airport are installed on Rikers Island in the East River, whence the signal is transmitted over wire lines to the control tower at the field. The new receivers were manufactured in the Specialty Products Shop at the Kearny Works of the Western Electric Co.

Woodman and Morris Resign from Nichols

Joseph C. Woodman and John E. Morris, engineers, who have been connected for 25 years with Decarie Incinerators and have been with Nichols Engineering & Research Corporation, New York City, since that organization acquired the business in 1938, have severed their connections with Nichols Engineering & Research Corporation. John R. Buffington, Chief Draftsman with a similar record, has also resigned.

New Ozone Installation

The borough of Denver, Pa., has recently awarded a contract to Ozone Processes, Inc., Philadelphia, Pa., to sterilize the borough water supply with ozone. The installation has been designed by Fred H. Dechant of William H. Dechant and Sons, Reading, Pa., so that the filtered effluent of the existing modern filtration system will be ozonated to remove objectionable tastes and odors.

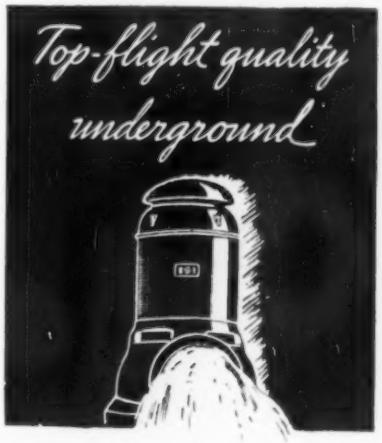
Garcia Appointed

Raymond F. Garcia, formerly General Manager of Sales of The Central Foundry Co., was appointed a Vice-President, effective January 1.

The Street Department of Vancouver, Wash., uses its Caterpillar diesel motor grader for heavy street construction maintenance and repairs. But equipped with a bulldozer, the Department finds an odd job for the machine in pushing crushed rock into trucks for street work. The machine moves 60 yards of material an hour.

Line Material Co. Moves Offices

Line Material Co., manufacturer of street-lighting equipment, has announced the removal of its executive and sales offices from South Milwaukee, Wis., to 740 North Second Street, Milwaukee. Mail should be addressed P. O. Box 2077, Milwaukee, Wis.



Oil or water-lubricated. Long-lived efficiencies. Capacities up to 15,000 gallons per minute. 4" wells or larger. Ask for catalog.

Peerless Pump Division
Food Machinery Corp.

Factories:
Los Angeles, San Jose, Fresno, Calif.
Massillon, Ohio

Peerless Pumps
Turbine,
Hi-Lift & Propeller

DEPENDABLE HARLEY-DAVIDSONS

Another of America's competent police departments recognizes the superior performance of Harley-Davidson Police Motorcycles! Des Moines, Iowa — like more than 3500 cities in the United States — has found from experience that Harley-Davidsons have no equal for reliability and economy. Des Moines' able motorcycle squad played an important role in establishing that city's traffic safety record, which for the first eleven months of 1939 is considerably better than the average for cities in its class.

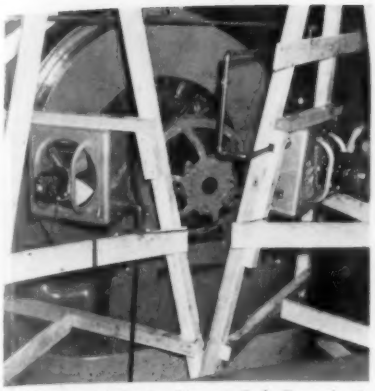
It will prove well worth your while to learn why Harley-Davidson Police Motorcycles are the nation's choice as modern, efficient traffic law-enforcing vehicles. Phone your Harley-Davidson dealer and have him bring over a new 1940 model for your inspection.

HARLEY-DAVIDSON MOTOR COMPANY
MILWAUKEE, WISCONSIN

A 1940 FEATURE!

Among the many important advancements featured on the 1940 models, and especially valuable in police service, is the Harley-Davidson Instant Gas Reserve Valve with Interconnected Gas Tanks. When main gas supply is exhausted merely pull up rod and reserve gas immediately flows to carburetor. Same gas level maintained in both tanks. Simple . . . Safe . . . Sure.

HARLEY-DAVIDSON
THE POLICE-MOTORCYCLE



Breezo-fin Units in Use at Col. Francis G. Ward Pumping Station, Buffalo, N. Y., to Dry Out Flooded Motors

Hot Air Used for Drying Flooded Motors

Part of the city of Buffalo was without water until the old Massachusetts Avenue pumping station could be put into operation, when a valve in a 60-inch main water line at the Col. Francis G. Ward Pumping Station burst early in January. The entire pumping floor of the Ward Station was flooded. Pumps, motors and the greater portion of all electrical equipment in the plant were from 6 to 10 feet under water.

Soon after the break occurred, the Commissioner of Public Works, L. A. Harding, called on the Buffalo Forge Co., of Buffalo, N. Y., for eleven Breezo-fin unit heaters for drying out the motors. These units, having canvas hoods placed over unit heaters and motors to confine the heat to the motors, were installed on temporary rigs. This method of blowing hot air directly into the water-soaked windings proved very successful, and after 10 hours service was partially restored.

National Meter Co. from 1870 to 1940

The National Meter Co., 4207 First Avenue, Brooklyn, N. Y., this year is celebrating its Seventieth Anniversary. In 1870 it manufactured the Gem, which was the first meter of the velocity type, and also the first one with a fish trap all within the same case. When the National Meter Co. started in 1870, water meters in most quarters were regarded as unnecessary and an unmitigated evil, in others they were comparatively unknown.

In 1879 the Crown meter was introduced, and then in 1884 the Empire meter, a positive measuring unit, using an oscillating system for measuring the water. Its inventor was the late Dr. Lewis H. Nash, Chief Engineer of the National Meter Co.

In 1888 this company brought out its disc meter, a style of instrument that is now sold in immense quantities by all meter companies. In 1892 the 100,000th meter of this company was sold, while today it has a record of 2½ million meters in service.

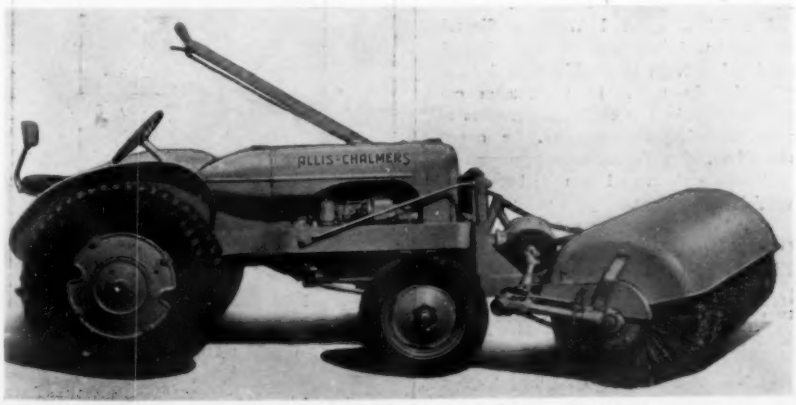
New Tractor Sweeper Announced by Hough

A new rotary broom tractor sweeper for use with Allis-Chalmers Model I-B tractors has just been announced by Frank G. Hough Co., Libertyville, Ill. This unit features a shorter sweeping path and lighter weight, making it ideal for sweeping skating ponds and sidewalks and cleaning walks and platforms in parks, industrial plants and material yards. It is also equal to the rigid sweeping requirements of black-top paving.

The manufacturer claims, among other features, a quick, easy lift of the broom, readily adjusted ground pressure, minimum broom wear, and a simple method of attaching and detaching the broom from the tractor. The sweeper cleans a 60-inch path and is furnished with a dust-hood which is readily removed for snow work.

The broom operates on self-aligning bearings and is chain-driven through a ratchet type clutch. Gear-boxes are ruggedly made and fitted with hardened cut-steel gears and ball and roller bearings.

The sweeper weight is approximately 1,000 pounds and carries the maker's usual unconditional guarantee as to design, workmanship and performance. A complete description is given in Bulletin No. 115 which is available from the maker on request.



The New Hough Sweeper Built for the Allis-Chalmers Model IB Tractor

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POWER SHOVELS
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The only positive method of preventing rusting, pitting and corrosion in steel water containers.

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Inside View of the Kompaka Body for Refuse Trucks, Showing the Large Packing Plate

New Refuse Collection Body

One of the features of the Kompaka body for refuse collection trucks, made by the Municipal Sanitation Corporation, Bridgeport, Conn., is the large packing plate used to compress and pack the refuse. Hydraulically operated, the plate is moved forward or reverse by one control lever.

Refuse is loaded into the body in front of the plate through large sliding doors placed on both sides at the front of the body. The plate, which has the same internal dimensions as the body, quickly compresses and packs the refuse solidly to the rear of the body. A predetermined-pressure valve eliminates the possibility of breakage in compressing.

The discharge of the material is just as simple. The plate is merely moved to the extreme rear, pushing out the solidly packed material. The manufacturer states that no sticking or bridging occurs with this method of discharge. No underbody hoist is required, and the necessity of jacking the body back and forth to free and dump the load is entirely eliminated.

New Circuit Tester for Control Equipment

A new circuit tester, possessing unusually wide flexibility of use for individual measurements on all types of control and signal equipment, has been announced by Weston Electrical Instrument Corporation, Newark, N. J. This Model 785 circuit tester has 27 complete ranges for voltage, current and resistance measurements. Some of its applications include checking sensitive relays, signal systems, cathode ray tubes, remote control circuits, public address systems, amplifiers, telephone circuits, alternating and direct current commercial motor voltages, electronic circuit values, and filament and cathode voltages on thyratron tubes. The sensitivity of the instrument permits voltage, current and resistance measurements also on oscilloscope circuits.

The New Compact Weston Model 785 Circuit Tester

The manufacturer states that instrument accuracy on DC voltage and current measurements is within 2 per cent, excluding the 1,000-volt range, which has an accuracy of within 3 per cent. The new temperature-compensated rectifier circuit used permits an accuracy on alternating current voltage of within 3 per cent.

The Weston circuit tester employs a standard unicell on all ranges where any appreciable current is drawn by the ohmmeter circuit. In addition, two 7.5-volt batteries are used to supply energy for the high-resistance ranges only. The new circuit tester is built in a case 13 x 12½ x 5½ inches, weighing, including the case and battery, only 13½ pounds. Further information about the new Model 785 circuit tester may be obtained by writing the manufacturer.

Niesley Joins Hanks at Boston Office

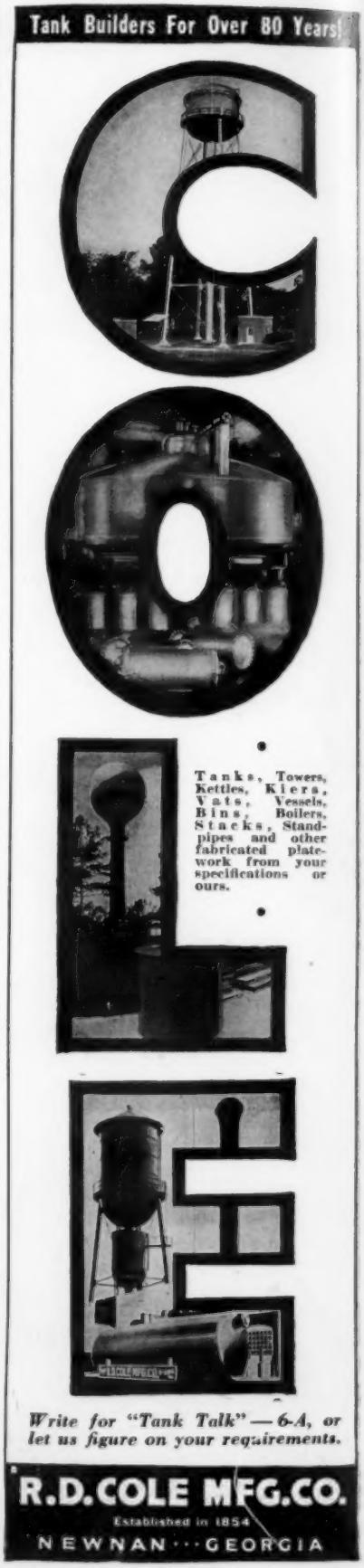
The Fred W. Hanks Co., Cleveland, Ohio, manufacturer of Nowarp and rubber discs for all makes of water meters, has announced the appointment of W. M. Niesley as its New England representative with headquarters at 900 Statler Building, Boston, Mass.

Promotions Made by Western Electric Co.

Western Electric Co., 195 Broadway, New York, has announced that W. A. Wolff, Advertising Manager of Western Electric Co. and Electrical Research Products, Inc., a subsidiary of Western Electric Co., has been appointed Information Manager of both companies, effective January 15. Mr. Wolff is succeeded by H. W. Forster, Information Manager for the past ten years.

Mr. Wolff entered Western Electric's student training course following his graduation from Columbia School of Engineering in 1905. In 1911, after early assignments in the engineering, sales and manufacturing departments, he entered the advertising department as a publicity and copy writer, and in 1929 became Advertising Manager.

Mr. Forster, who was graduated from Columbia College in 1920, joined Western Electric in 1924. He later entered the public relations department as editor of two of the company's employee papers, *The Observer* and *The Distributor*, and as an associate editor of the Western Electric News. Since 1930 he has been Information Manager.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Tanks, Towers, Kettles, Kiers, Vats, Vessels, Bins, Boilers, Stacks, Standpipes and other fabricated plate-work from your specifications or ours.
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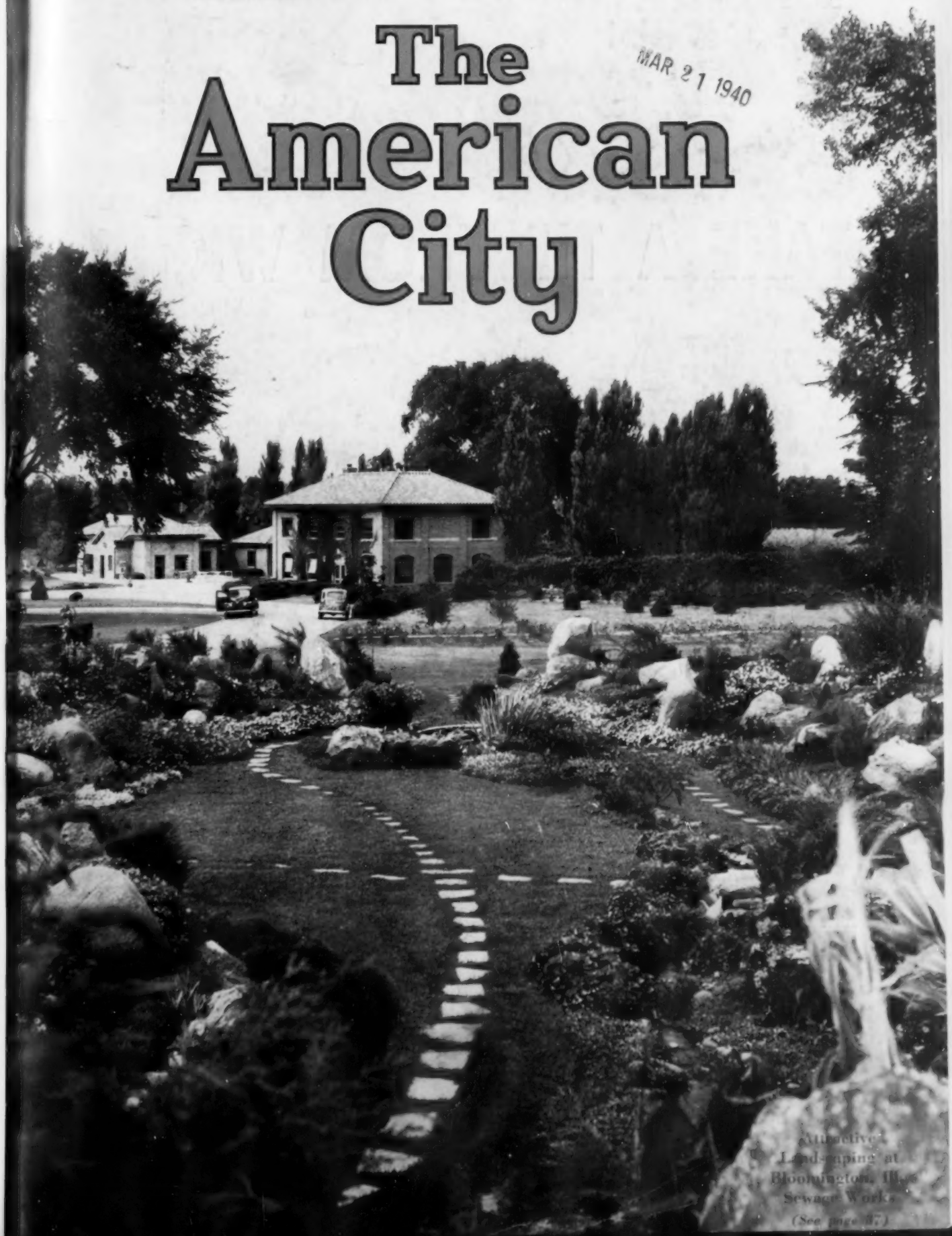

Attractive Landscaping at Bloomington, Ill., Sewage Works
(See page 87)